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College of Preachers, Washington Cathedral

FROHMAN, ROBB & LITTLE, ARCHITECTS

By E. Donald Robb

THE COLLEGE OF PREACHERS, in Washington Cathedral Close, is the central unit of a future group comprising the Administration Building of the Cathedral, the College of Preachers, and the Cathedral Library. Of the latter building one small memorial wing has already been built. The Administration Building will adjoin the north side of the great cloister, with the other buildings of the group swinging more or less radially eastward about the apse of the cathedral, following the natural contours of the site. Reference to the general plan of the Close will explain the location of the College of Preachers between the cathedral on the south and Woodley Road to the north.

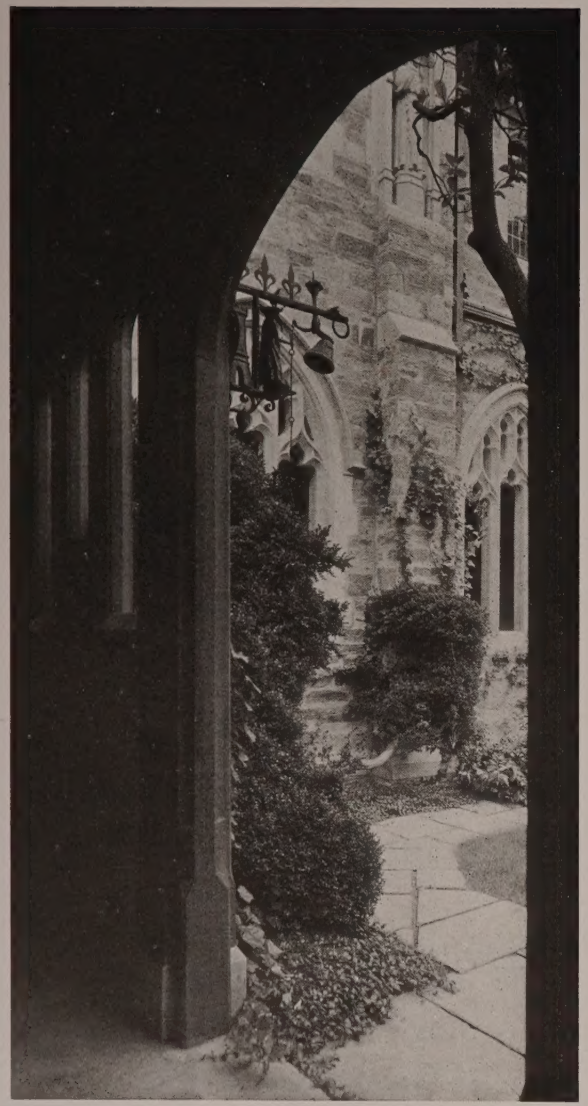
To explain briefly the purpose of the building, it might be called a small post-ordination school where clergy, coming from all parts of the country, live for a few days or weeks at a time in monastic simplicity and devotion, receiving instruction and inspiration from the very ablest preachers and teachers of the Episcopal faith, thence returning to their various churches renewed in spirit and better equipped to serve. Later on it is planned to have special students in residence for six months or longer.

Never were architects given a more interesting problem—the curving plan and the sloping site together have made a picturesque building inevitable, with few right angles and no balanced axes. The detail, too, is varied throughout to give greater interest and life. To add to the general interest of the problem, no one seemed to be exactly certain, when we were commissioned to make the designs, just what were the definite requirements of such a college. So far as could be learned, nothing of the kind had ever been planned before. After much patient study, and more than the usual number of conferences, the building committee, the warden, and the architects evolved a programme, the outcome of which is illustrated herewith. This programme called for a building of a monastic type, with single rooms for twenty-five students, a residence for the warden and quarters for the teaching staff, refectory with kitchens and pantries and laundry, together with quarters for servants, several small lecture-rooms, a common room with library, and a small private chapel. These departments group around a cloister and service court, which will be enclosed on all sides when the future library building is erected. The lower or north side follows a curving roadway. The upper faces a future garden surrounding the apse of the cathedral, with a difference in finished grade of thirty feet between the two sides.

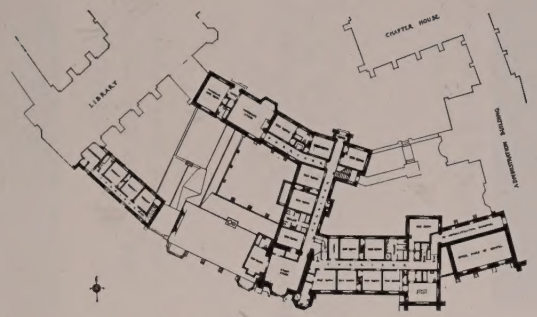
The style selected was, quite naturally, English Tudor, in order to harmonize with the cathedral towering above it. A strict adherence to this style has not been considered necessary nor desirable. The cottages of the Cotswolds were the source of inspiration for the residential portions. The chapel is earlier in type. The refectory suggests the great hall of an English manor house. Half-timbering is used across one end of this room, and somewhat sparingly on the exterior of the service wing. Details have been carried out with much informality and variation everywhere.

As the cathedral itself is a select buff Indiana limestone, and as this group is to cluster around and below it, we have used a warm gray seam-faced granite, quarried locally, for ashlar, trimmed with the rougher Rustic Buff limestone. This causes the cathedral, soaring above, to stand out in finer and lighter-colored stone, while the college below becomes a part of its foundations visually and spiritually. The main entrance is in the tower, the entrance lobby running through two stories, and giving vistas

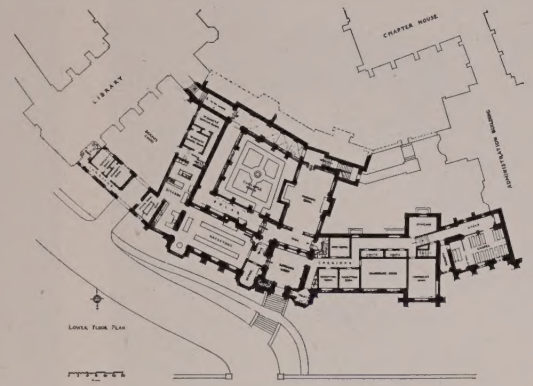
The main entrance on the north side, with the Dormitory Wing at right



A view of the Cloister from the East Walk

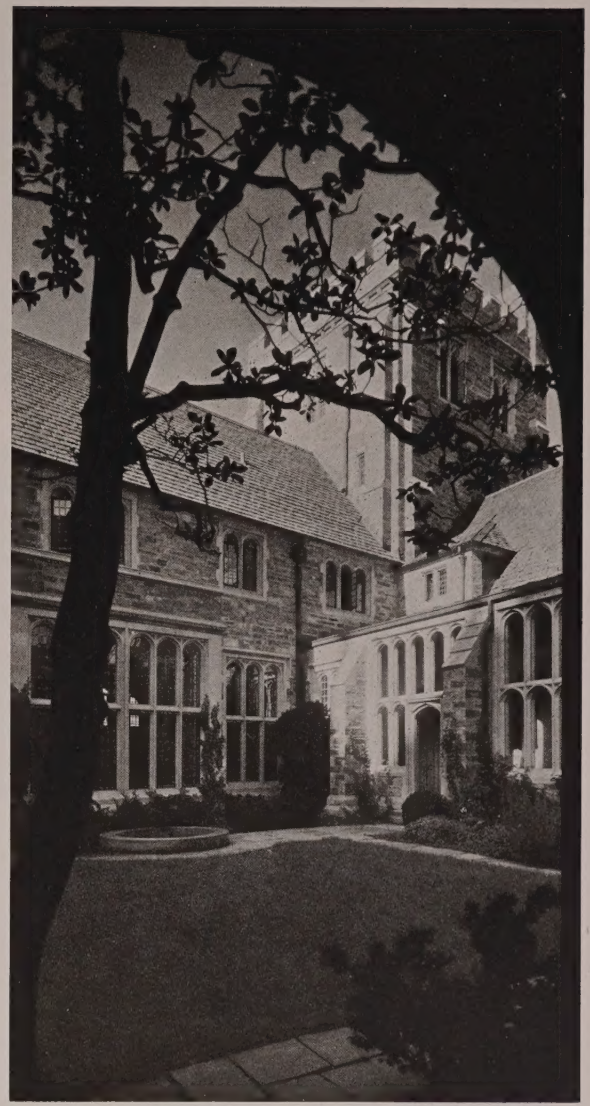


Plan of the upper floor

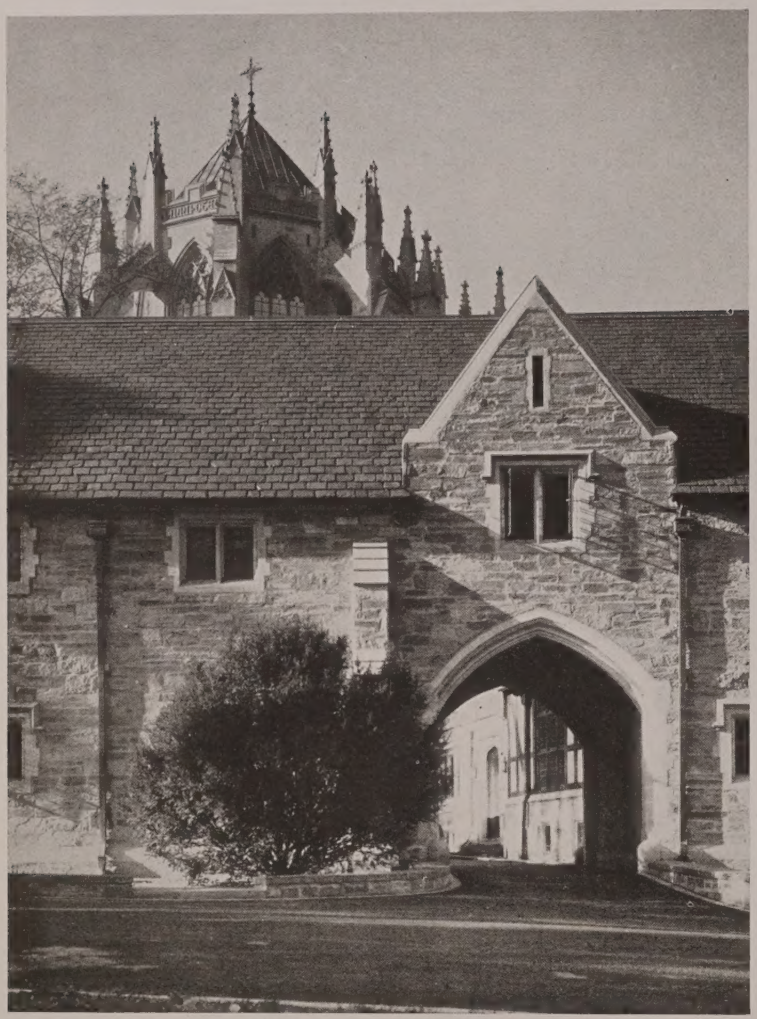


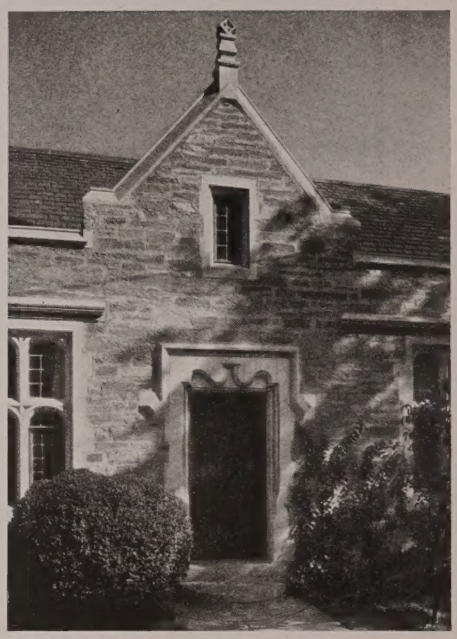
Plan of the lower floor, showing the relation of the present unit to the proposed group, including the Library, the Administration Building, and the Chapter House. The compass arrow points downward to north

All photographs by Paul J. Weber



In the Court looking toward the Common Room and the North Cloister





The entrance doorway to the Warden's Wing

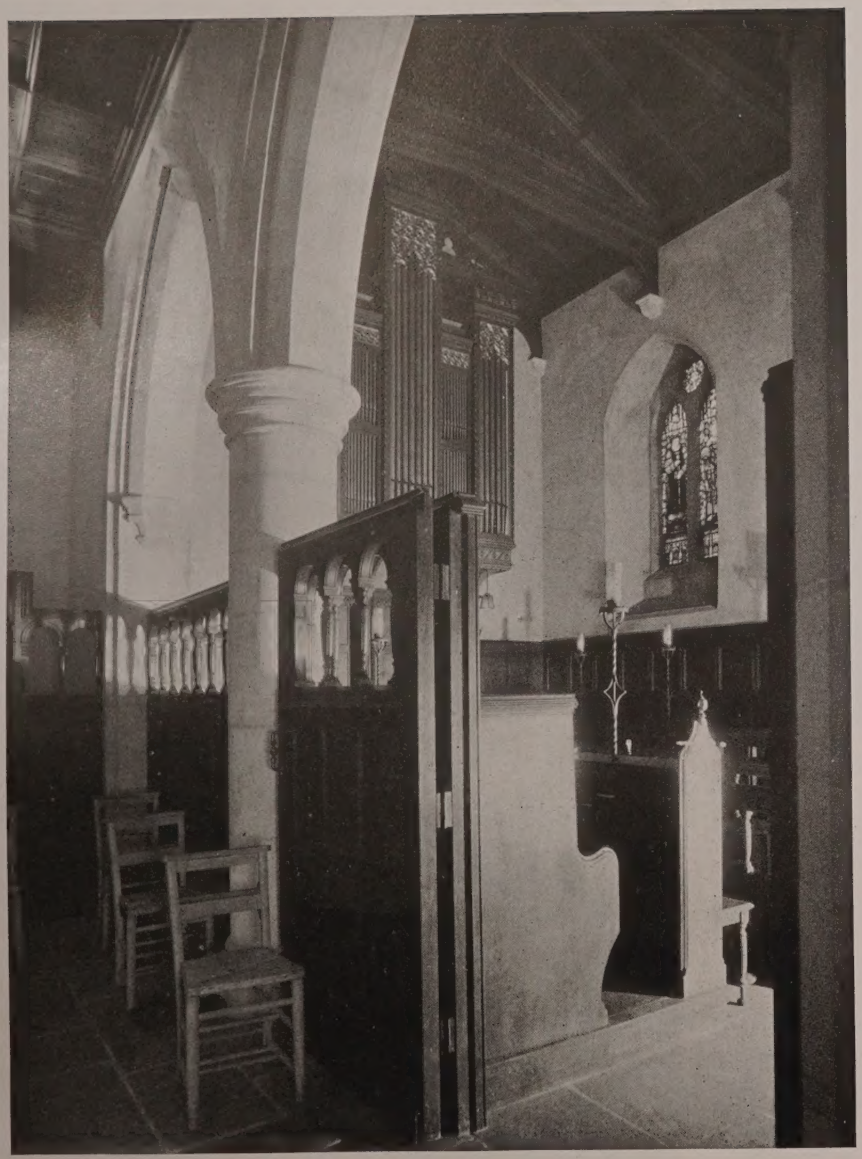
The entrance to the service court with the service wing at left of the archway and the apse of the cathedral beyond on the heights

The south wing—dormitory and warden's suite with its entrance on the upper level

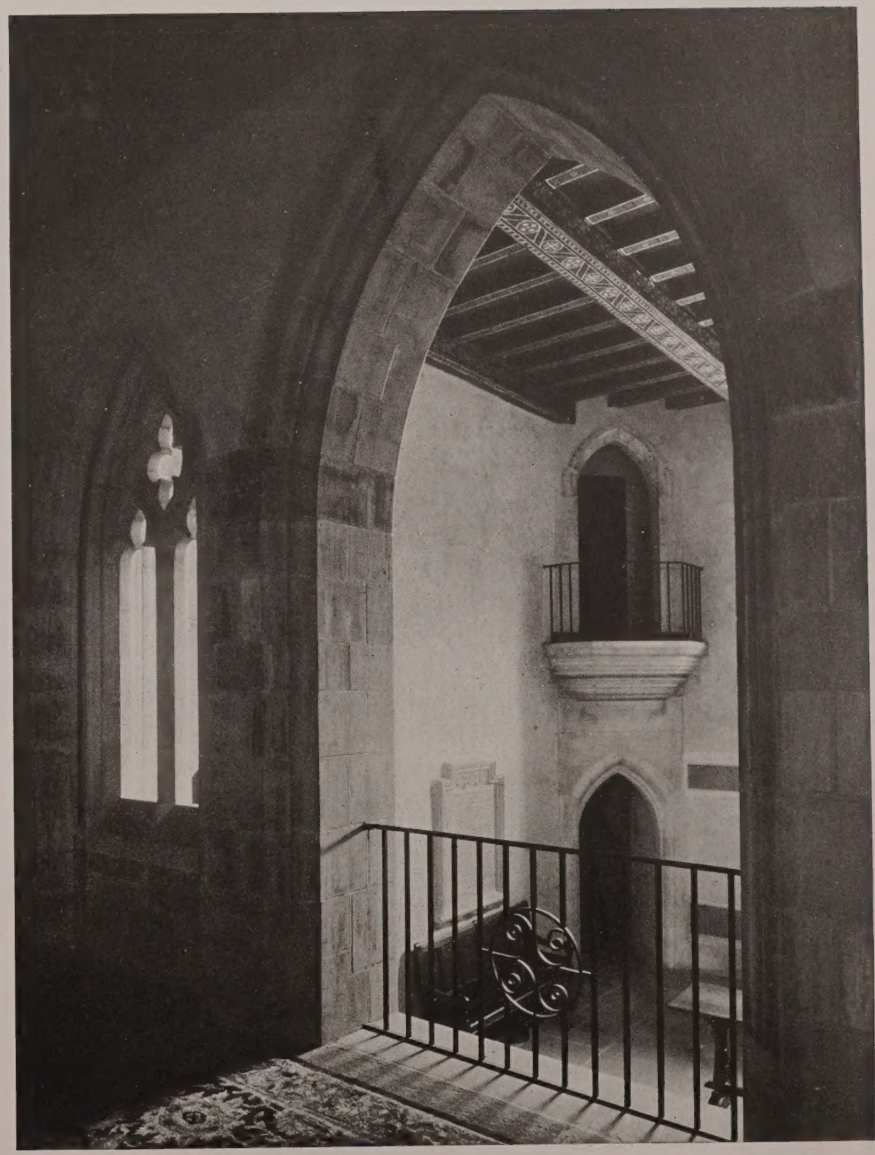
The south entrance to the dormitory, on the upper level

The Court and South Cloister (the location of the fountain has been changed from that shown on the plan)

Inside the service court, with the archway entrance in middle



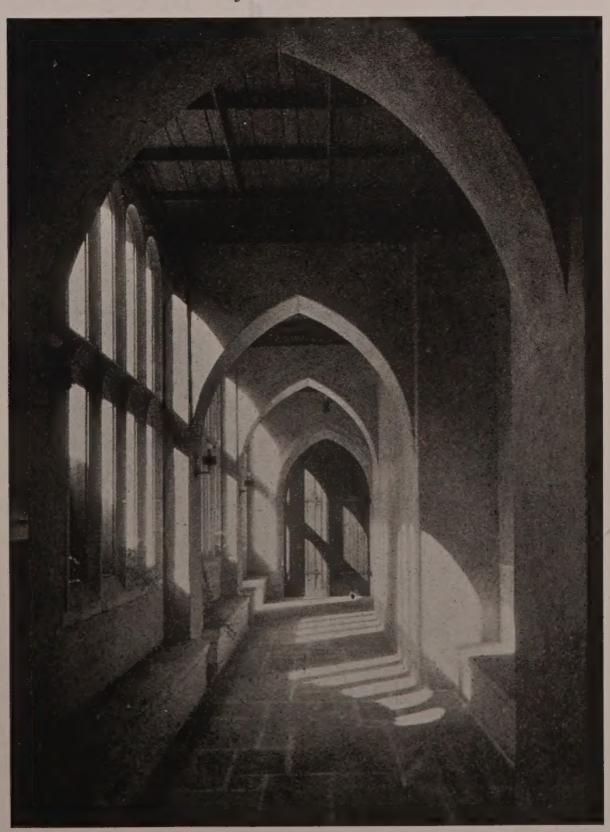
The west end of the Chapel as seen from the aisle



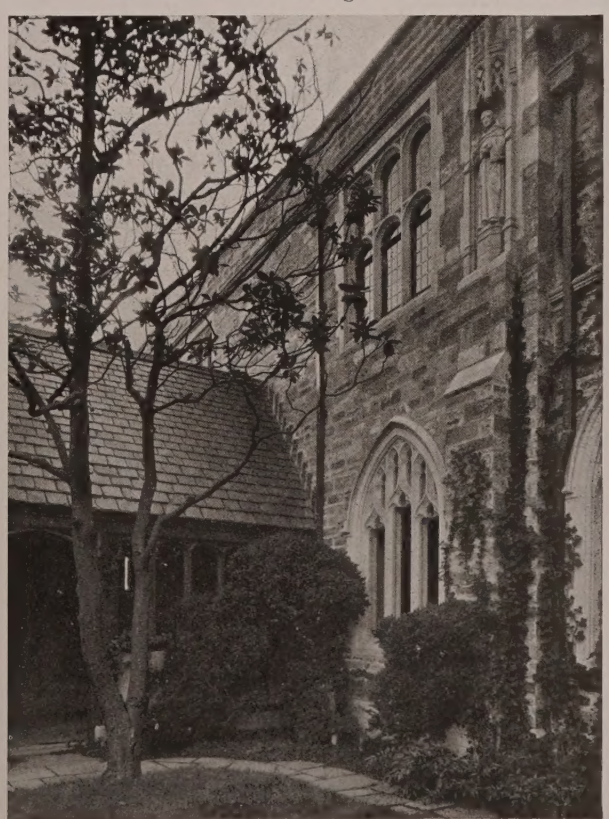
The Main Lobby from the Common Room Lobby

The Common Room, toward the south end and the bay overlooking the Cloister

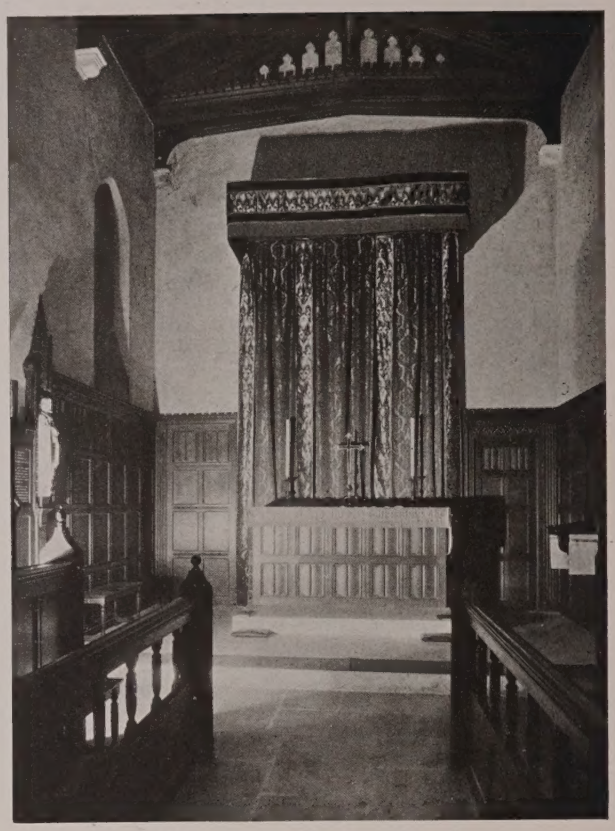
In the North Walk of the Cloister



In the Cloister looking toward the East Walk



In the Refectory, looking east



The east end of the Chapel

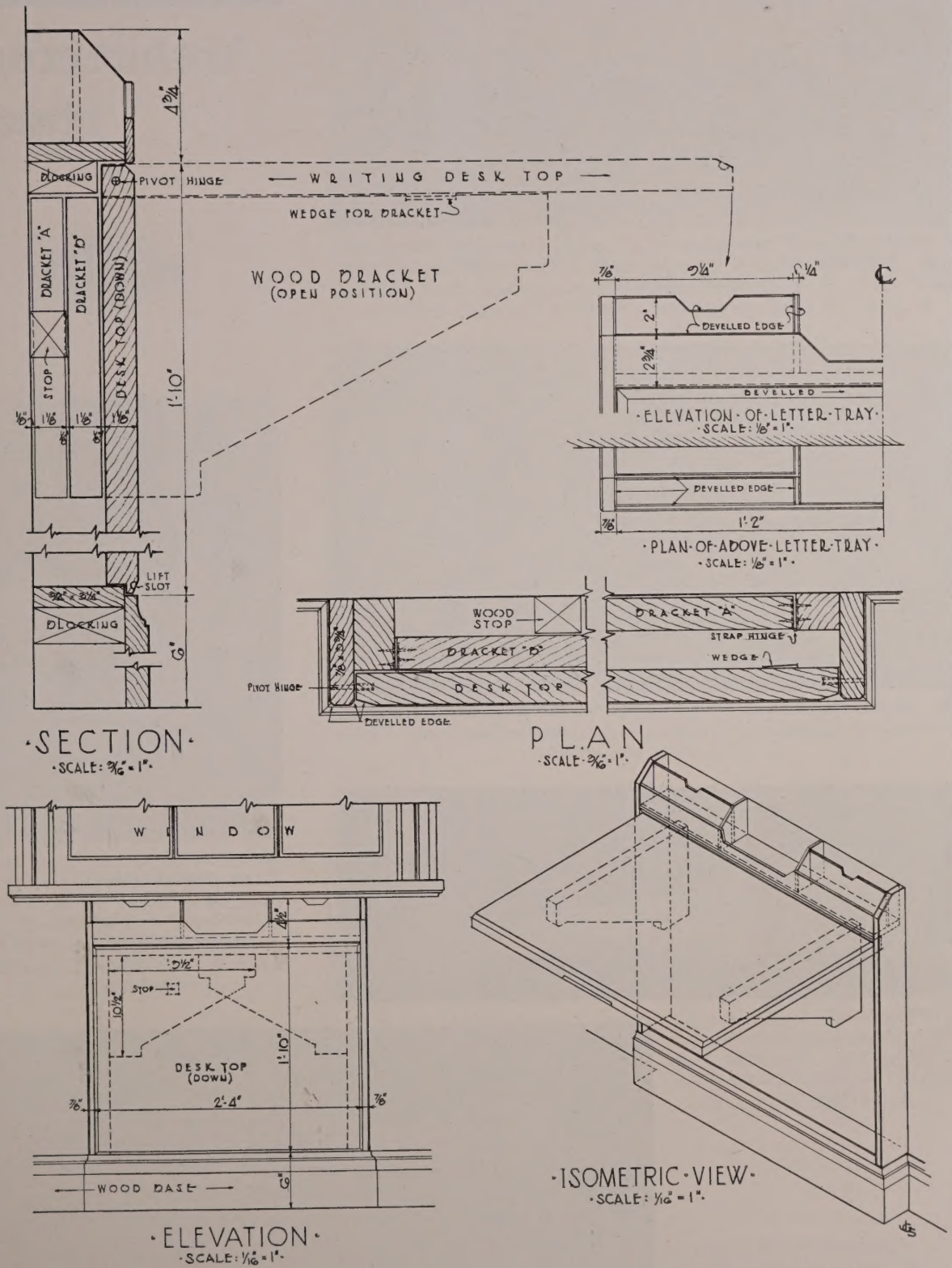
into the refectory, and through an open arcade into the common room on a higher level. An elevator in the corner turret of the tower connects with the upper floors.

The common room forms one side of the cloister, and its windows look out upon a garth thirty-five feet square for which Mrs. G. C. F. Bratenahl, landscape architect of the cathedral, was awarded the Renwick Gold Medal of the Garden Club of America for 1929. The magnolia tree in the far corner, which was brought into the cloister garth across the adjoining wall during the construction of the building, is apparently none the worse for the adventure; a fountain plays quietly near the common-room bay, and from a niche on the high wall to the south Saint Francis preaches to the birds—and others. Against the timbered east wall an ancient wrought-iron bell, from a monastery near Lucca, calls to meals and classes. All in all, it is an area of exquisite peace and beauty.

The south wall of the cloister will ultimately connect with the Cathedral Library Building, the third building of the group. Connection with the Administration Building on the west will be had through a corridor above the side aisle of the chapel. Covered communication will then be obtained through all units of the group, and also with the cathedral, sacristies, and Chapter House.

The building, together with its furnishings and landscaping, is the gift of Alexander Smith Cochran, who unfortunately did not live to see the fulfilment of his dream. The success is in no small measure due to the landscaping by Mrs. Bratenahl. Probably no new building ever had the advantage of such devotion, patience, and genius in finding, obtaining, and planting the right thing in the right place. Ancient box and full-grown trees were brought from great distances and transplanted without the loss of a single specimen. The giant wisteria, which climbs to the very top of the tower, still holds in its grip a portion of tree trunk to which it originally clung, and from which it refused to be separated.

The presence of this aged shrubbery has produced an atmosphere of antiquity around a building but little more than a year old; and the resulting spirit of quiet repose cannot fail to influence those who come to the college for help and inspiration.



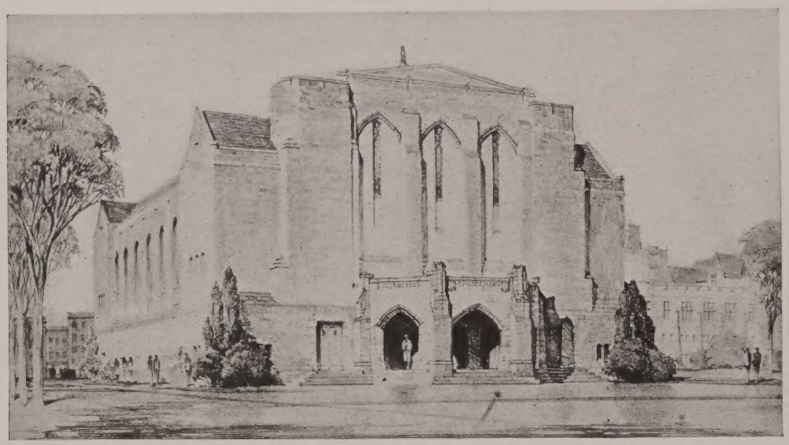
DETAIL OF BUILT-IN WRITING DESK

A Series of Working Drawings by Jack G. Stewart

PLATE Nº 20

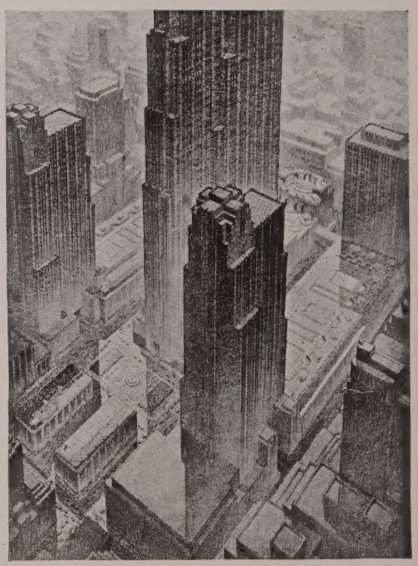
Architectural Photo-

Work is well under way upon a Community Centre for Manchester, Conn., consisting of the Whiton Memorial Library (left) and the Morton Y. M. C. A. The central portion is now standing. At the right will be the Y. M. C. A. gymnasium. Hutchins & French, architects



The proposed George R. Thorne Hall for the McKinlock Campus, Northwestern University, Chicago. James Gamble Rogers and Childs & Smith, associated architects

Winning design by J. L. Gleave, Timperley, Cheshire, England, in the Columbus Memorial Lighthouse Competition



An air view of the proposed so-called Radio City in New York, from the east side of Fifth Avenue north of 51st Street. Reinhardt & Hofmeister; Corbett, Harrison & MacMurray; and Hood & Fouilhoux, architects

A preliminary perspective of Chicago's new Post Office as it will look from the northwest—housing also various other governmental activities. Graham, Anderson, Probst & White, architects

News in graphs

A proposed Community Centre for Avalon Park, Chicago, which it is expected will cost approximately $375,000. Alfred S. Alschuler, Inc., architect

The new building for Christ Church (Methodist Episcopal) now being built at 60th Street and Park Avenue, New York City, in which Cram & Ferguson recognize the futility of a spire in competition with surrounding high buildings

Government House, the new residence of the High Commissioner for Palestine. Austen St. B. Harrison, architect

The new Central Terminal Building recently completed at the Chicago Municipal Airport, measuring 220 by 160 feet outside. Huszagh & Hill, architects

The night lighting of the recently completed Scottish Rite Temple, Kansas City, Mo. Keene & Simpson, architects

BOOK REVIEWS

THE ART OF CARVED SCULPTURE. By Kineton Parkes. Two volumes. 465 pages, 5¾ by 9 inches. Illustrations from photographs. Printed in Great Britain. New York: 1931: Charles Scribner's Sons. $8.50 each volume.

There are two kinds of sculpture—that which is carved from the block, and that which is modelled in plastic material. The author separates the two very clearly, as they should be separated, not that one is any better than the other, but they are two distinctly different arts. These two volumes treat of the glyptic art from the cave-dweller up to the present time, giving a particularly well-balanced and convincing survey of the sculpture that is cut from a block.

VOLUME CHANGES IN BRICK MASONRY MATERIALS. By L. A. Palmer. 24 pages, 5¾ by 9¼ inches. Illustrations from photographs and diagrams. Research Paper No. 321. Reprint from *Bureau of Standards Journal of Research*, Vol. 6, June, 1931. Pamphlet binding. Washington: 1931: U. S. Department of Commerce, Bureau of Standards. 10 cents.

THE ORDERS OF ARCHITECTURE. By Arthur Stratton. Introduction by A. Trystan Edwards. 49 pages and 80 plates, 9 by 11¾ inches. Illustrations from drawings and photographs. Printed in Great Britain. Philadelphia: 1931: J. B. Lippincott Co. $8.

In spite of the fact that we already have a great many books on the Orders, Mr. Stratton, who formerly taught architecture in the University of London, feels that in most of the existing volumes the presentation makes an interesting subject irksome and dull. While the plates of the Orders themselves have not the great delicacy of line that marks Esquié, for instance, this is perhaps more than offset by the inclusion of many examples of each Order, with brief notes as to where and when they were built.

SCHOOL VENTILATION—Principles and Practices. 73 pages, 5 by 7½ inches. New York: 1931: Bureau of Publications, Teachers College, Columbia University. $1.

A New York Commission on Ventilation was appointed by the Governor in 1913. The Commission published an extensive volume in 1923. After a reorganization of the State Government, which made the continuation of the Commission impossible, it was constituted by the Milbank Memorial Fund in 1926. Since then the Commission has published a number of technical reports, and closes its work with this brief final résumé. Among its findings, it is pointed out that large sums are spent by municipalities throughout the country in an attempt to conform to obsolete regulations which have been proven not only unnecessary, but even a menace to health.

TWO LECTURES ON ARCHITECTURE. By Frank Lloyd Wright. 63 pages, 7½ by 10¼ inches. Illustrations from drawings and photographs. Chicago: 1931: The Art Institute of Chicago. 75 cents.

Educational institutions from the Atlantic to the Pacific have apparently been demanding most of Mr. Frank Lloyd Wright's time in recent months, for lectures to their students on his philosophy of life and art. Mr. Wright has so much to say that he seems not to repeat himself, to judge from a comparison of these two lectures at The Art Institute of Chicago with the series at Princeton, also recently put into book form.

AN EARLY AMERICAN HOME AND THE FUN WE HAD BUILDING IT. By Claude H. Miller. 238 pages, 6¼ by 9¼ inches. Illustrations from photographs and plans. New York: 1931: Thomas Y. Crowell Co. $3.50.

The author, who was at one time associate editor of *Country Life*, tells with a keen sense of humor the vicissitudes of the layman in building his home. Mr. Miller is writing for the layman, but his book is of great incidental interest to the architect in presenting a point of view which does not admit that the architect sits upon a throne and issues ukases.

DESIGNING AND BUILDING THE CHAPTER HOUSE. By Oswald C. Hering. 63 pages, 8 by 11 inches. Illustrations from photographs and plans. Menasha, Wis.: 1931: George Banta Publishing Co. $1.25.

Mr. Hering, a New York architect, is chairman of the Interfraternity Conference on Architecture, and has for years made a study of the problem of chapter-house design. He points out with considerable emphasis the importance of consulting a qualified architect, but disappoints us in failing to give any credit to the various architects who have designed the chapter houses illustrated in his book.

THE DAYLIGHT ILLUMINATION REQUIRED IN OFFICES. Illumination Research Technical Paper No. 12. By A. K. Taylor. 10 pages, 6 by 9¾ inches. Illustrations from graph plans. Pamphlet binding. Printed in Great Britain. London: 1931: His Majesty's Stationery Office (The British Library, 551 Fifth Avenue, New York City, Agents). 10 cents.

A panel of the front entrance door, house of S. O. Merriman, Jamestown, N. Y.

Albert W. Ford, architect; craftsmanship by Otto W. Heinigke

Lead and Glass in Silhouette

By Eugene Clute

THE type of leaded glass in which the lead plays the principal part, forming the design in silhouette while the glass fills the voids, affords an excellent means of enrichment under many circumstances to which leaded glass of the more familiar kinds is not so well adapted.

Examples of this kind of work have appeared here and there during the past few years and some of them are admirable, but it seems to have remained for the recently completed Sterling Memorial Library of Yale University, James Gamble Rogers, architect, to give this method of treatment prominence in a work of architecture of monumental character and outstanding importance.

It is difficult to apply a properly descriptive name to this kind of leaded glass, since it embraces works that vary greatly in technic. The one distinguishing characteristic that marks all varieties is the formation of the design from lead seen in silhouette, not as a mere outline for the design.

Though very old stained glass shows the occasional introduction of fretted lead in parts of the work, the development of a distinct type of leaded glass upon this basis, or upon the massing together and shaping of the leads (cames), appears to be of comparatively recent origin.

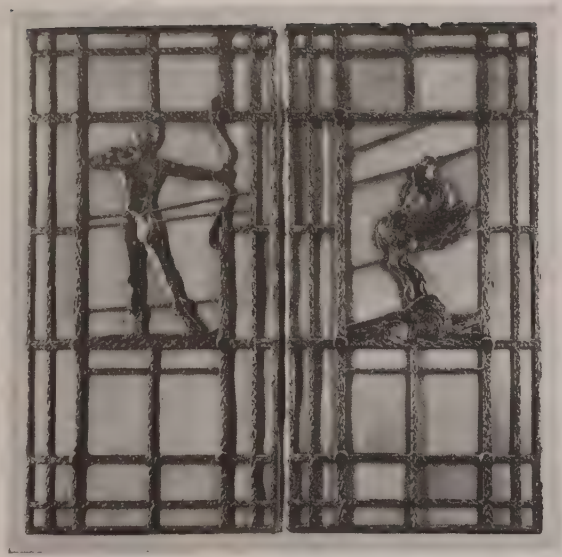
A tendency in this direction is to be seen in some of the stained glass of the latter part of the nineteenth century in the use of lead lines as the chief element in the design, colored glass being used only sparingly in points of accent, with clear glass for the major part. An excellent example of this stage of development is a window that was made for the residence of George Gould, at Lakewood, N. J., some thirty-five or forty years ago and that is still to be seen in the building, which has now been converted into a convent. The architect was Bruce Price, and the craftsmanship was by Heinigke & Smith.

Otto Heinigke, master craftsman in stained glass of the last generation, was a pioneer in this development and there is still in existence a small panel by him, made apparently as an experiment in the technic, in which the design is composed entirely leads massed together in silhouette. Though the design is of little interest, the principle it demonstrates is important.

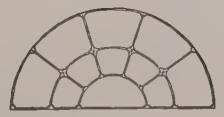
This principle has been developed by his son, Otto W. Heinigke, in the beautiful panel of exquisite workmanship, showing an old-time ship at sea, a photograph of which is reproduced here.

In this instance the leads that outline the silhouetted masses are whole cames, of the usual H-shaped section, while the areas inside of the outlines are filled with flanges (leaves) cut from lead cames, joined together by soldering over a backing of glass. These little strips of lead are

A door panel in a New York apartment. Craftsmanship by G. Owen Bonawit



Panels for the doors of a gun case. Craftsmanship by G. Owen Bonawit



Panel for a door in a country house. Craftsmanship by G. Owen Bonawit

A window panel, Grand Central Art Galleries, designed by J. Scott Williams, the lead of which is painted in polychrome

juxtaposed and arranged with great skill and in a variety of ways to produce the texture and direction of lines desired. In some places they are lapped like clapboards; elsewhere they are superimposed like batten construction; and often they are butted edge-to-edge and the joints made to form slight ridges, with sunken delicately curved surfaces between. This refined modelling of the lead surfaces gives them the character and interest needed in expressing the design.

In this panel the lead is of a soft dull black color and the effect is that of a ship seen against the light blue of a moonlit sky on a sea of pale

A vestibule window panel in Sterling Memorial Library, Yale University. James Gamble Rogers, architect; craftsmanship by G. Owen Bonawit

green. There is yellow light in the cabin windows and the flag flying from the mast is red and blue. Antique green glass is used to represent the water, and seedy antique glass (containing small bubbles) is used in two thicknesses (plated) in parts to suggest the foam on the waves. The panel illustrated is a replica, made for exhibition, the original being set in the heavy oak entrance door of a residence by Albert W. Ford, architect.

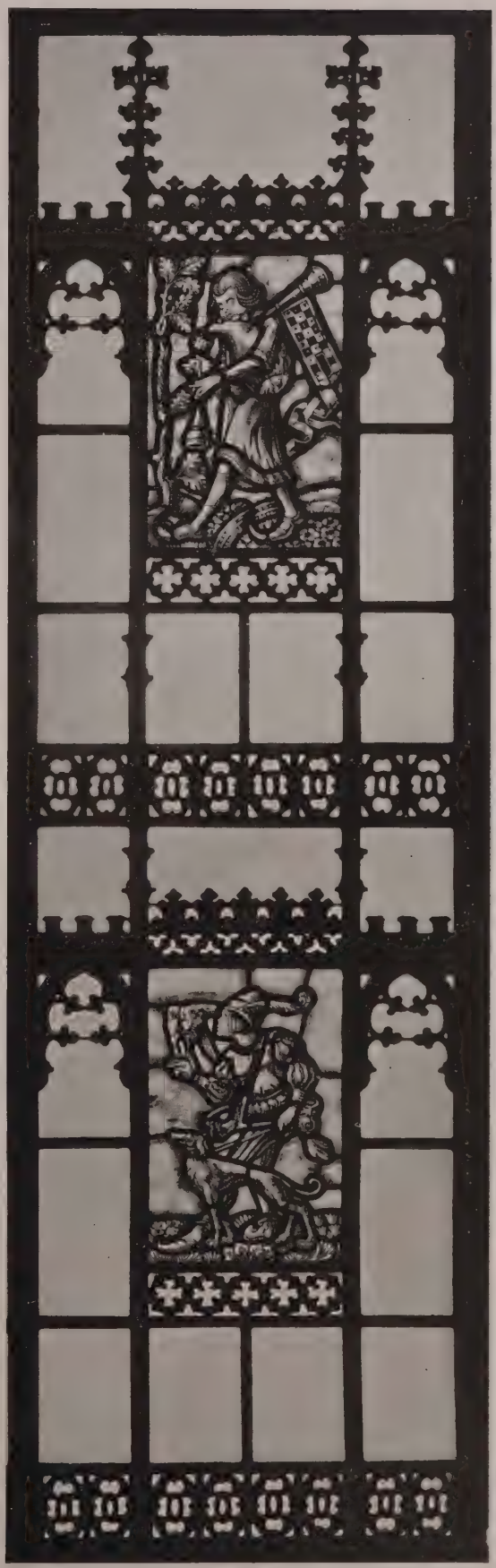
The detail of a side light for a residence by Mellor, Meigs & Howe, architects, is very crisp and graceful in design and well studied for the relation of form and of light and dark. The design is formed of whole leads, extending through from face to face, and the surfaces are vigorously modelled. The craftsmanship is by Heinigke & Smith.

In the room at the Grand Central Art Galleries, finished in oak in the early English manner, are windows of leaded glass that have figure designs cut from lead in silhouette and painted in polychrome by J. Scott Williams. The greater part of the windows is of clear glass with simple leading. The silhouettes are painted with a heavy paste of oil paint laid on thickly in vigorous strokes that give texture and richness of effect. The beauty of the drawing can be seen in the photograph of one of these medallions, the illustration being large enough to show the technic of the painting.

Especially notable instances of the use of silhouettes of lead combined with glass are found in the grille over the entrance to the First National Bank and Trust Company Building at Hamilton, Ohio (ARCHITECTURE, Feb., 1931), and in the leaded-glass panels in the Board of Directors Room and private offices of the Hardware Mutual Insurance Building, Stevens Point, Wis. (ARCHITECTURE, Oct., 1922). Childs & Smith, of Chicago, were the architects of both of these buildings and the leaded glass was made by G. Owen Bonawit for the Lindon Company. The lead was flooded with solder, which was worked to form a texture and allowed to oxidize to a dull silver gray, after which it was lacquered.

Very interesting examples of silhouette work in lead on glass are the windows made by G. Owen Bonawit for the United States Embassy in Tokyo, Japan; H. Van Buren Magonigle, architect. In this case the use of help lines or break lines of leading, which would have been required in glass made up of pieces set in strips of lead, has been avoided by using a piece of

Half of a window in the Northern States Insurance Building, Hammond, Ind. Childs & Smith, architects; craftsmanship by G. Owen Bonawit



Half of a window in the Northern States Insurance Building, Hammond, Ind. Childs & Smith, architects; craftsmanship by G. Owen Bonawit

A very simple panel from the George F. Tyler House, Elkins Park, Md. Mellor, Meigs & Howe, architects; craftsmanship by Heinigke & Smith

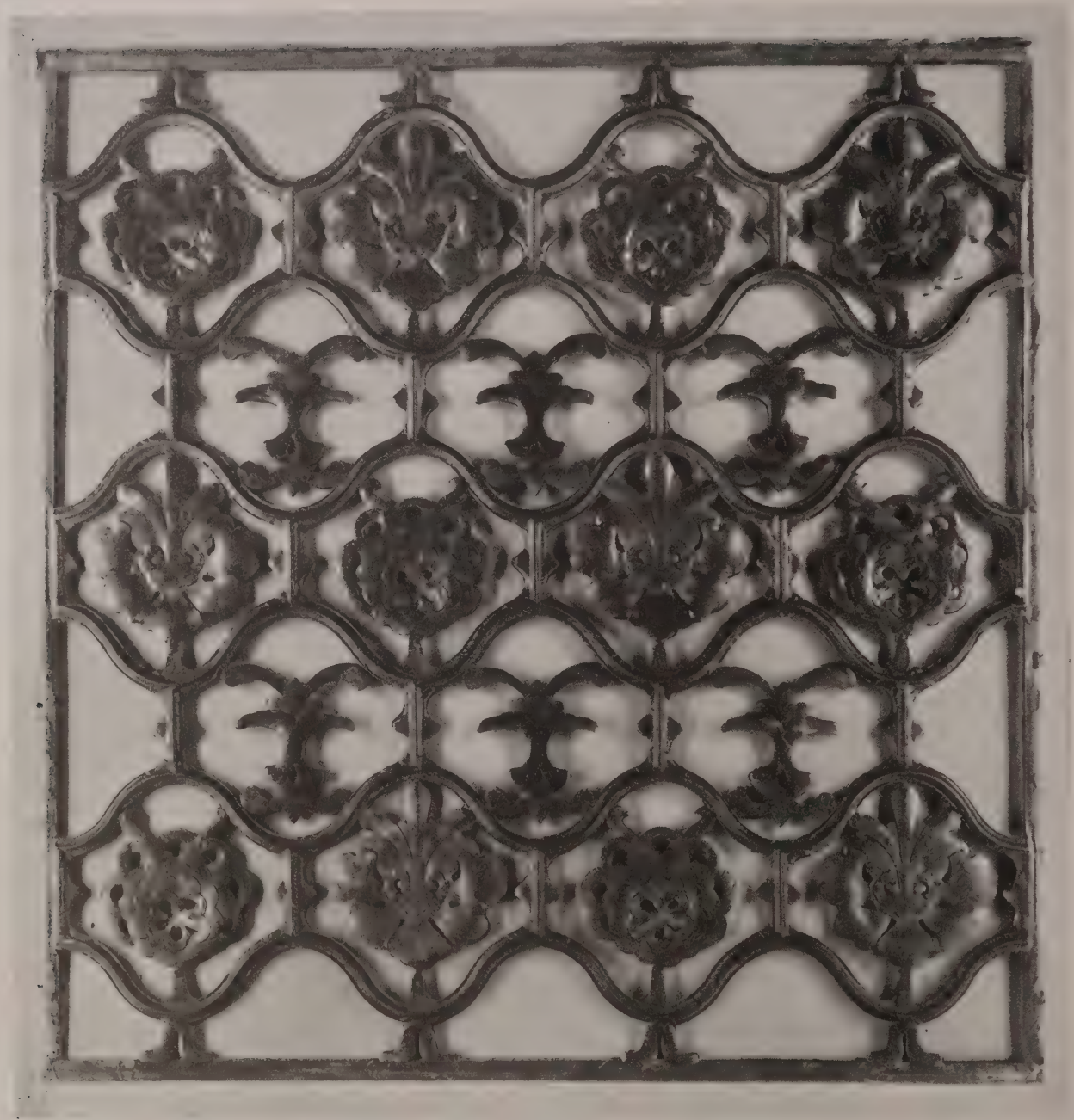
A window panel, Sterling Memorial Library, Yale University. James Gamble Rogers, architect; craftsmanship by G. Owen Bonawit

A window in the Rare Book Room, Sterling Memorial Library, Yale University. James Gamble Rogers, architect; craftsmanship by G. Owen Bonawit

plate glass the full size of each window. Holes were drilled through the glass where required to attach the lead work, four hundred and ten holes in each window, 22 by 60 in. The design in lead, the same on both sides, was applied with a special cement, and anchored by passing wire solder through the holes and melting it with a soldering-iron to form rivet-like connections through the glass from lead to lead. It will be noted by reference to the photograph that the ornament is built up with laminations cut from sheet lead and applied one upon another. The finish is a soft, satin-like black.

In the lead-and-glass work in silhouette in the Sterling Memorial Library, executed by G. Owen Bonawit, sheet lead cut to form has been applied by attachment to lines of cames that extend throughout the work, the same as in stained glass. The sheet lead was attached by sweating with solder to the lines of lead, then the surface was flooded or puddled with solder, upon which the relief and the desired texture

Lead doors for a bank at Hammond, Ind. Childs & Smith, architects; craftsmanship by G. Owen Bonawit. Here, as in the window panel on page 16, the lead greatly predominates over the area of glass



A window in the United States Embassy, Tokyo. H. Van Buren Magonigle, architect; craftsmanship by G. Owen Bonawit

were built up and modelled in the solder. Much of the work in this building is finished entirely in gold leaf, antiqued, while some of it has the appearance of old silver, with softly luminous high lights and dark oxidation in the depressions of the surface. A lacquer has been added to preserve its coloring. Besides the elaborate fret-like designs there are very effective simple designs in which straight lines of lead cross each other in a basket weave at the intersections. In these windows there are hand-wrought spear-heads at the top. The work is stiffened by the use of cames, each reinforced by a strip of steel in its centre, so that the usual external reinforcing bars are not needed. These windows are alike in design within and without, lending beauty to the openings whether they are seen as crisp silhouettes or as ornament in low relief with a lively and beautiful texture and a softness of coloring that tones in with the stone of the building. They mark the early steps of an old craft into paths that may lead us far.

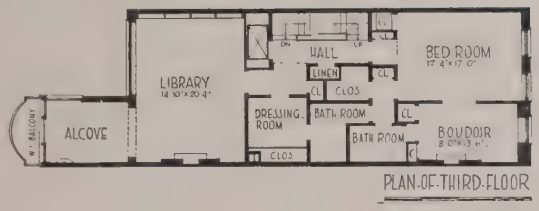
Photographs by
Richard Averill Smith

The finish is grayish brown stucco on brick. There is no attempt to simulate stone jointing, but the surface pattern is secured by changes in planes of one-eighth to three-sixteenth inch. The flower-boxes are of cast stone, copper lined

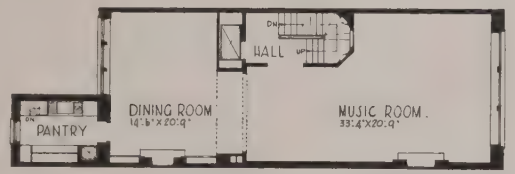
HOUSE OF
J. T. JOHNSTON MALI,
NEW YORK CITY

OFFICE OF
ROSWELL F. BARRATT,
ARCHITECTS

Fountain in library, of monel metal and silver. The upper outlet is for filling flower vases. The wall and Venetian blinds are dull turquoise; the tiles blue over tan; the floor of iridescent brown slate



PLAN OF THIRD FLOOR



PLAN OF SECOND FLOOR

PLAN OF FIRST FLOOR

House of J. T. Johnston Mali,
New York City

OFFICE OF

ROSWELL F. BARRATT, ARCHITECTS

The stair hall at the music-room landing. As will be seen from the plan, the casement window shown on the stairway is a borrowed light, opening toward the 10 x 17 ft. north window of the music room

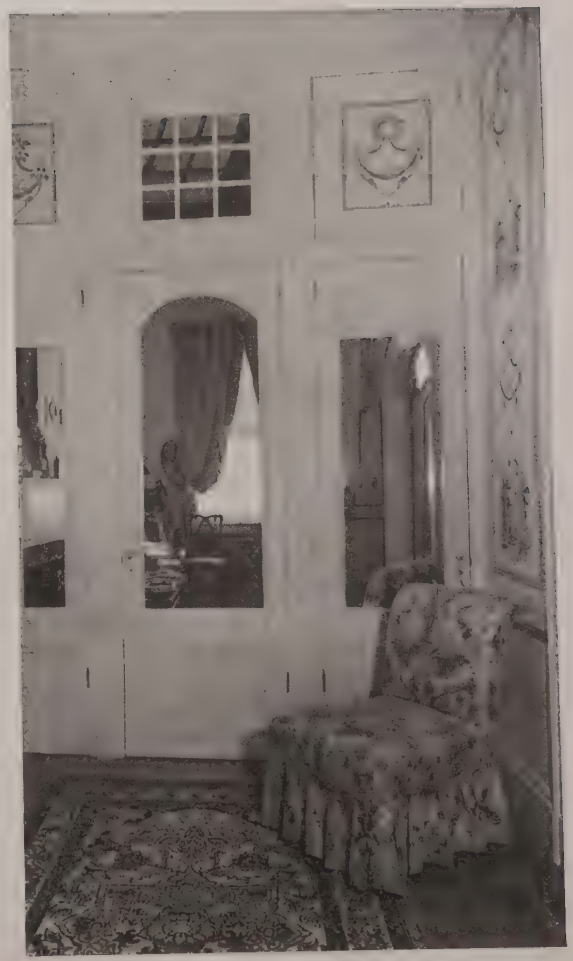
Music-room mantel. The fireplace hearth is Belgian Black marble; the facing, black and gold marble. On the ceiling there is aconventionalized pattern of strap work to harmonize with the Renaissance tapestry

Library, with its recessed book shelving. Walls and trim are dull turquoise

The dining-room, of same color as the music room, into which it opens. The recessed space over the mantel was designed to accommodate the old clock

HOUSE OF J. T. JOHNSTON MALI,
NEW YORK CITY

Boudoir as seen from the main bedroom. French wall-paper panels in pink and green; walls and trim are pink; the wood mantel returns are concave; the fireplace facing of green marble



End wall of the boudoir. The three doors open to a cabinet of trays, a bathroom, and a closet

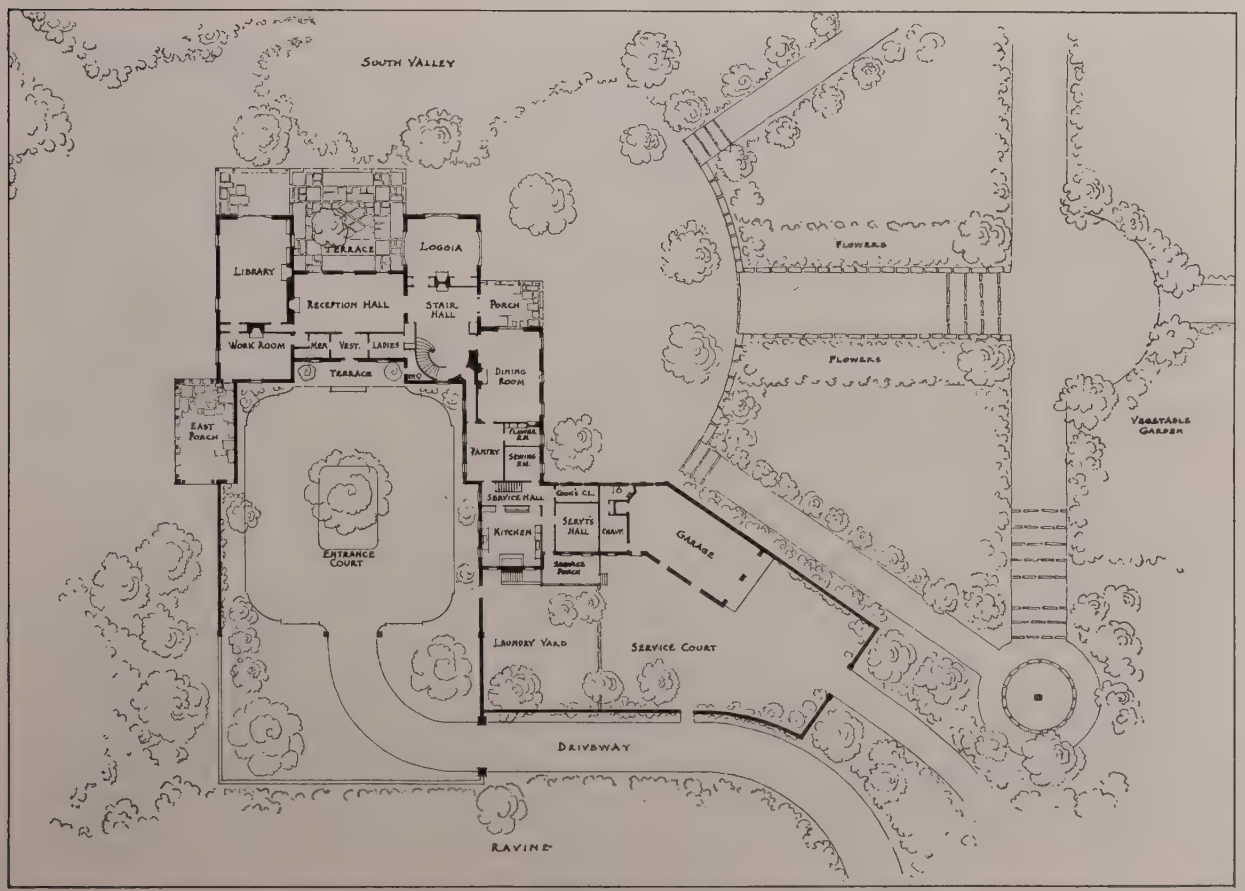
OFFICE OF ROSWELL F. BARRATT,
ARCHITECTS

Photographs by Samuel H. Gottscho

House of Paul D. Cravath, Locust Valley, Long Island

BRADLEY DELEHANTY, ARCHITECT

ISABELLE PENDLETON, LANDSCAPE ARCHITECT



The terrace front

Gateway to the entrance court

HOUSE OF PAUL D. CRAVATH, LOCUST VALLEY, LONG ISLAND

BRADLEY DELEHANTY, ARCHITECT

West side with the service quarters at left

Detail of entrance from the court

House of Paul D. Cravath, Locust Valley, Long Island

BRADLEY DELEHANTY, ARCHITECT

Main staircase looking toward a window into entrance court

HOUSE OF PAUL D. CRAVATH, LOCUST VALLEY, LONG ISLAND

BRADLEY DELEHANTY, ARCHITECT

ELSIE COBB WILSON, INC., INTERIOR DECORATOR

The fireplace side of the loggia

In the dining-room, the long window of which looks out upon the garden

House of Paul D. Cravath, Locust Valley, Long Island

BRADLEY DELEHANTY, ARCHITECT

ELSIE COBB WILSON, INC., INTERIOR DECORATOR

The fireplace in Mr. Cravath's workroom

The east porch

The gardener's cottage

HOUSE OF PAUL D. CRAVATH, LOCUST VALLEY, LONG ISLAND

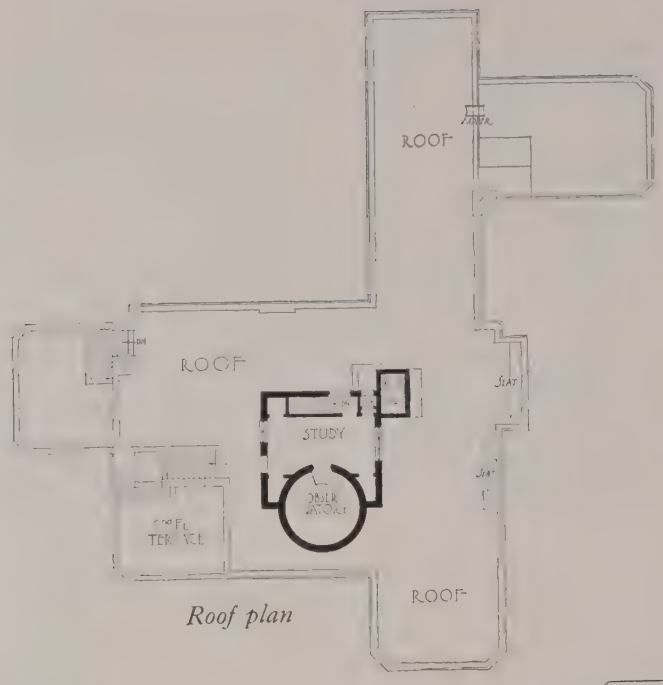
BRADLEY DELEHANTY, ARCHITECT

Photographs by Nyholm & Lincoln

The brick-faced walls are painted in pastel shades of yellow, blue, green, and red-brown

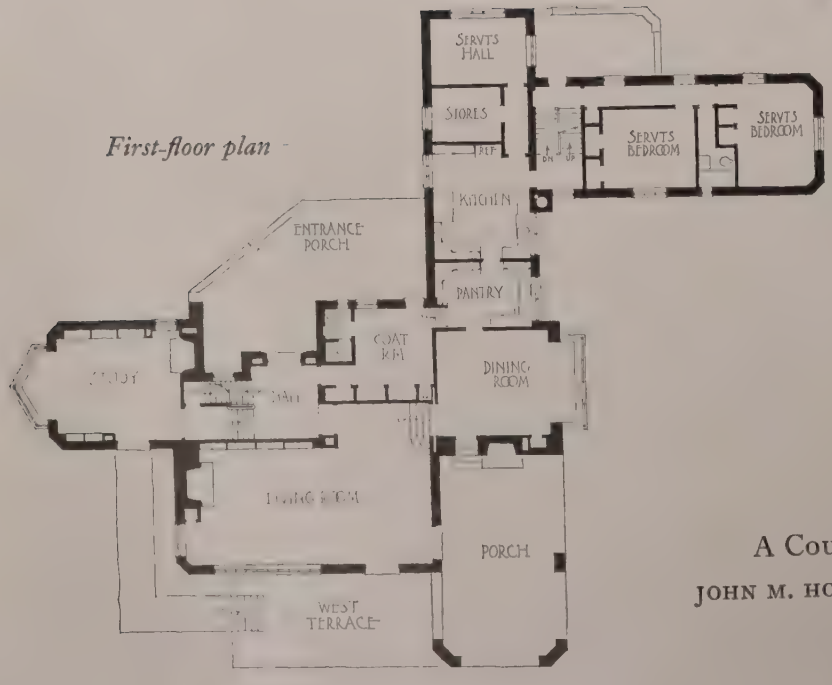
A Country House, Ossining, N. Y.

JOHN M. HOWELLS AND RAYMOND M. HOOD, ASSOCIATE ARCHITECTS



Roof plan

Second-floor plan



First-floor plan

A Country House, Ossining, N. Y.

JOHN M. HOWELLS AND RAYMOND M. HOOD, ASSOCIATE ARCHITECTS

The fireplace end of the living-room, in which the usual axial arrangement has been abandoned in the interests of comfort and light. The walls are greenish gray, the floor covered with a deep-green carpet, the furniture in maple and black leather, the draperies patterned in wood-green, orange, and brown

A corner of the living-room, looking into the dining-room on a higher level

A COUNTRY HOUSE, OSSINING, N. Y.

JOHN M. HOWELLS AND RAYMOND M. HOOD, ASSOCIATE ARCHITECTS

The study has walls of natural cork, waxed, with black trim and chromium-plated lighting-troughs. The carpet is eggplant color, curtains wool tapestry, furniture ebony and harewood, with black veal skin covering for sofa and desk

One of the dressing-rooms, in all of which the important furniture has been built in

A COUNTRY HOUSE, OSSINING, N. Y.

JOHN M. HOWELLS AND RAYMOND M. HOOD, ASSOCIATE ARCHITECTS

The dining-room walls are covered with a silver gray Prima Vera veneer applied over the plaster. The furniture is macassar ebony upholstered in red leather; the carpet is burgundy; the draperies have a modern pattern in warm coloring

A bedroom, the walls of which have a washable covering in rose and silver. The carpet is black, the draperies blue, the furniture of ebony and harewood

A Country House, Ossining, N. Y.

JOHN M. HOWELLS AND RAYMOND M. HOOD, ASSOCIATE ARCHITECTS

The stairway has a chromium rail, the stair treads being black slate; the floor, terrazzo in green and black chips. Side walls are greenish gray

A COUNTRY HOUSE, OSSINING, N. Y.

JOHN M. HOWELLS AND RAYMOND M. HOOD, ASSOCIATE ARCHITECTS

Below, the garage, painted in the same colorings as the house, and providing quarters for seven cars, a repair shop, and service apartments

CONTACTS

DEVOTED TO A BETTER UNDERSTANDING OF THE BUSINESS SIDE OF ARCHITECTURE AND ITS RELATION TO THE INDUSTRIES

Heating the House

THE following is an excerpt from Section IV of The Tentative Report submitted by the Committee on Fundamental Equipment to the President's Conference on Home Building and Home Ownership, held in Washington, December 2 to 5 last. It is an excellent example of the thoroughness with which the many committees carried out their work, aiming to show how we can build better houses more economically for America, particularly in the lower-income ranges. Although this and the other reports are based upon the needs of the small house, many of the provisions, as in this case, apply to domestic architecture throughout the scale.

1. *Cost of Equipment as Affected by District and Climate, also by Urban or Rural Location.* About the first thing a prospective home builder or owner wishes to know is the comparative cost of the various kinds of heating systems. Definite figures for these comparative costs cannot be determined for any particular house in any particular district except by submitting definite plans and specifications to several reputable contractors for estimates. In the process of budgeting a home before this state is reached it is very helpful to have some idea of what these comparative costs may run. . . .

The ordinary one-pipe steam system is made the basis of comparison and the following general observations may be of value.

The costs of one-pipe steam systems in the colder climates range from 15 per cent for $2,000 homes to 10 per cent for $9,000 homes and in the milder climates from 10 per cent for the $1,500 homes to 5 per cent for the $7,000 homes. The costs of other systems in percentage of the cost of one-pipe steam systems will range as follows:

Two-pipe vapor	125%
Two-pipe hot water	130%
Piped furnace	65%
Pipeless furnace	35%
Convection heaters or stoves	15%
Air conditioning gas or oil fired furnaces	150%
Air conditioning furnaces with summer cooling	250%

Heating systems costing more than 10 per cent of the total cost of the home are out of normal proportion in the budget and for this reason stoves, convection heaters, or grates are recommended for houses costing $2,500 or less.

2. *Operating Costs.* After analyzing the cost of equipment, the next important question is the economy of operation. . . . The following general observations may be made in this connection. Almost any kind of system with almost any kind of fuel may be operated more economically in the colder than in the milder climates in the matters of heating done per unit of fuel used. This is true for the reason that the load factor in the colder climates is more uniform and therefore requires less regulation, banking, and "on" and "off" operation.

The cost of oil in cents per gallon multiplied by 1.3 for hard coal and by 1.4 for soft coal will give the equivalent cost of coal in dollars per ton.

The cost of gas in dollars per 1,000 cubic feet multiplied by 24 for hard coal and by 26 for soft coal will give the equivalent cost of coal in dollars per ton.

These figures are general averages and may vary widely with various fuels, systems, and methods of control and operation.

3. *Personal Preferences.* The further important questions are concerned with comfort, cleanliness, noise, odors, space occupied, general appearance of apparatus, labor and care of operation, control and uniformity of results, and the carrying charges and upkeep of apparatus.

These are all questions which must be decided by each individual owner in accordance with his desires and requirements.

4. *Effects of Building Construction.* The effects of different types of building construction on the heating of a home are shown in Tables 12, 13, 14, and 15 in the appendix, but the following general points may be observed.

Standard wood construction is taken as a basis and shall be understood to consist of the following:

Walls—of 2″ x 4″ studs spaced not over 18″ on centres, 25/32″ wood sheathing on outside, building paper over this and bevel siding, drop siding or shingles over this; inside wall wood laths and plaster.

Roof—wood shingles on slat deck on wood rafters, no underfinish. Attic floor—wood joists, no attic flooring, under finish of wood laths and plaster forming the top-floor ceiling.

Walls of other constructions will have the following general effects on an average six-room house.

The addition of an extra wood sheathing under the plaster will have about the same effect as the substitution of the ordinary ½″ board form of insulating base and will add about $100 to the cost of the house, save about $100 in the cost of hot-water heating system and about $15 in the cost of coal in the colder climates. In milder climates these may reduce to a saving of $40 in the cost of a hot-water heating system and less than $5 in the saving of fuel.

The addition of lumber construction consisting of 25/32″ wood sheathing and ⅞″ x 2″ furring strips under the wood laths and plaster and similar furring strips between the outside sheathing and the siding or shingles will add about $250 to the cost of the house, save about $180 in the cost of a hot-water heating system and about $30 in the cost of coal in the colder climates. In milder climates these may reduce to $75 and $5 respectively.

Lumber construction with stucco outside instead of the siding or shingles will cost about $100 less, but may cost slightly more for heating system and coal.

An 8″ common brick wall furred and plastered on the inside will cost about $600 more and will require about the same heating.

A 12″ brick wall furred and plastered on the inside will cost about $900 more and require slightly less heating.

An 8″ hollow clay tile wall with stucco outside and plaster inside on the masonry will cost about $675 more and will require more heat.

A 12″ tile wall of the same character will cost about $1200 more and require slightly less heat.

In the matter of roofs the addition of a 25/32″ wood attic floor will add about $60 to the cost of the house and save about $75 in the cost of hot-water heating equipment and $10 in cost of coal in the colder climates, reducing to $30 and practically nothing respectively for milder climates.

Tile roof instead of shingles will cost about $275 more and require slightly more heating.

The addition of a tight deck to a shingle roof will add about $50 to the cost of the house and save about $10 in cost of fuel in cold climates.

The addition of an under finish of wall board or plaster to the underside of roof joists will cost about $125, save $100 in cost of heating equipment, $15 in coal in colder climates, reducing to $50 and $3 respectively in milder climates.

In connection with the above figures hot-water heating has been used and the relative saving in costs for other systems will be in proportion to their relative costs.

5. *Effects of Building Insulation and Weatherstripping.* The effects of different kinds of insulation on the heating of a house are shown by the tables published as an appendix to this report, and the following general observation may be noted in connection with these.

The value of insulation or weatherstripping a home, as far as the cost of heating is concerned, depends upon the amount that can be saved in the way of interest and depreciation on the cost of the heating systems, plus the saving in the cost of fuel, as compared with the interests on the added cost of the insulation or/and weatherstripping. The heat losses from the average home, without insulation or weatherstrips, is divided into about 35 per cent through walls, 20 per cent through ceilings and roofs, 20 per cent through glass, and 25 per cent through air leakage. Of these losses about half of the loss through walls, ceilings, and roofs can be prevented by good insulation and about 75 per cent of the losses through air leakage can be prevented by good weatherstripping.

This means that the preventable losses, based on the amount of fuel required for the same house without insulation or weatherstrips, are as follows:

1. Through walls by insulation.....15 to 20%
2. Through roofs by insulation..... 5 to 10%
3. Through air leakage by weatherstripping 15 to 20%
4. Total by insulation and weatherstrips ..35 to 50%

Good insulation in the colder climates will save about 30 per cent of the cost of the heating system and from 20 to 30 per cent of the cost of fuel. In an average-size-room house the added cost of insulation for walls and roof will amount to about $450, the saving in cost of the heating system will be about $225, and the yearly saving in fuel will be about $45. These conditions vary with climatic conditions, so that in the milder climates the saving in cost of the heating system may amount to not over $100 and the saving in fuel to less than $10 per year. These figures are based on wood construction and hot-water heat. The saving in the cost of the heating system will vary as the comparative cost of different types varies.

In all instances of insulation it should be remembered that the substitution of many of the ½″ commercial insulations for plaster base instead of wood lath and for sheathing instead of wood does not constitute the kind of insulation referred to above.

Also, masonry walls up to 12″ thick, while more durable and more costly than wood, require better insulation.

Heavier masonry walls may require the same or even less insulations than wood walls and in addition may produce much warmer conditions in winter and cooler conditions in summer on account of their added capacity for heat, which, by causing a lag in the time of transmission, will prevent some of the heat getting out in winter or in in summer except during protracted periods of either hot or cold weather.

In addition to the economic consideration, good insulation tends to prevent cold walls which produce a disagreeable sense of chilliness to persons near them, although the surrounding air within the room may otherwise be at the comfort temperature. It also tends to produce more uniform temperature between floor and ceiling, to prevent cold floors, and air leakage and disagreeable drafts. In the summer, it tends to prevent sweating of walls and excessive air change or replacement of the conditioned air where cooling is employed.

Generally speaking, flexible and blanket forms of house insulation have high insulating values, but some types may be subject to deterioration or infestation.

In the colder climates the cost of weatherstripping is usually paid for by the reduction in the cost of the heating system and a saving in fuel of about 20 per cent of this amount is made per year. This condition varies, according to climatic conditions, so that in the warmer districts the saving in the cost of the heating system reduces to about 25 per cent of the cost of weatherstrips and the saving in fuel to about 5 per cent. Weatherstrips tend to prevent disagreeable drafts and cold floors in winter and to prevent excessive air change where summer-time cooling is employed.

Electric heating at 1 cent per kilowatt hour will equal the cost of heating by coal at $30 per ton and the cost of the apparatus will about offset the cost of a steam-heating boiler, the remainder of the apparatus throughout the house usually being an ordinary two-pipe hot-water job.

HISTORIC HOUSES *from* OLD PRINTS

View of the Seat *of his Excellency* John Hancock, *Esq^r*, Boston, *engraved for the Massachusetts Magazine, July, 1789*

The Seat *of* Henry Livingston, *Esq^r, at Poughkeepsie, N. Y., engraved for the* New York Magazine *about 1791*

Most of us are fairly well acquainted with the architectural landmarks remaining from the seventeenth and eighteenth centuries. Those of somewhat later periods have largely been overlooked, perhaps in our impression that the dark ages of our art history were longer in extent than is actually the case

The Seat *of M^r.* Duplantier *near* New Orleans, *lately occupied as Head Quarters by* Gen^l. J. Wilkinson. *1814*

The Richmond Hill House, Washington's Headquarters. Residence of Vice-President Aaron Burr *(1801–1805) when New York was the* Capital *of the United States*

The Seat *of* Mr. John Stevens, *Hoboken, N. J. 1814*

Sedgley, *the* Seat *of* Mr. Wm. Crammond, *Pennsylva. 1814*

Undercliff, *near Cold Spring* [*N. Y.*], *the* Seat *of* General George P. Morris. *1839*

John Jacob Astor's *former residence, 88th St. near East River. 1864*

Residence of the SCHERMERHORN FAMILY, *foot of 84th St., East River. 1866*

The Editor's Diary

Sunday, November 1.—Lancelot Sukert gave the National Retail Lumber Dealers' Association a little plain talk at their recent convention in Detroit. Contrasting the way in which steel has been steadily winning popular favor for building purposes, Sukert points out many of the shortcomings of those who have been responsible for the sale and use of wood in building. The lumber dealers seem to have worked solely on the theory that what the owner wants is not better lumber, but cheaper lumber. Why have they not told the architect, for example, how an auto-bus manufacturer manages to hold up an upper-deck load of passengers on a few slim wood window mullions and 1½-inch square bowed ceiling ribs? If an architect were to design such a bus, the average city building code would require him to make the side walls of 2 x 4 inch studs, and the roof of 2 x 8's. Sukert bemoans the fact that our calculations have to be based upon the poorest lumber and the poorest workmanship at the point of connection. No laboratory has ever told us how to get the most out of the least lumber. Perhaps the time may come when an enlightened industry will furnish builders with faultless lumber, cut to dimensions that are actual and not merely nominal, such as the steel-manufacturing industry has been doing and still does.

Monday, November 2.—The system of radio transmission and reception installed in the Waldorf-Astoria is an amazing recapitulation of what the scientists have developed within this generation. Room 615 is a radio control room—the centre of the whole system. Any guest wanting a radio service in his room notifies the hotel switchboard, and has a loud-speaker delivered to his room and plugged in. It has two controls—one for the selection of a programme from among six open to choice, the other for volume. Incidentally, the latter can never be loud enough to annoy guests in adjoining rooms. The six programmes can originate from any combination of three sources: radio picked up from the air or wired directly into the hotel from broadcasting studios; events going on in any of the hotel public rooms; and music reproduction from records. The control operator, moreover, can draw from any of these sources, and can amplify the programme into one or all of the seventeen public rooms; he can send them to the 1,940 guest rooms; he can direct three of them to broadcasting studios by wire. There are seventy-two locations in the hotel at which microphones can be connected to pick up music or speeches, which, of course, can be amplified at the spot, anywhere else in the hotel, or sent out for further broadcasting. Three antennæ serve the whole system—strung between the two towers. One is a pickup for the general radio system, the other two supply radio reception to the 138 private suites—a combined use of antennæ that is made possible by a new method designed by the Bell laboratories.

Tuesday, November 3.—Maurice L. Condon was telling me to-day of the scheme by which the architects of the Radio City project in New York hope to maintain a healthy growth of large trees on elevated terraces. Condon, who is a nurseryman, devised the scheme of introducing semicircular cables or bars, the ends of which are secured to studs in the concrete base of the planting area, these bars to bind down the root system, the roots themselves helping the process. It is necessary, of course, to provide artificial irrigation and drainage for these areas, which will have a three to four foot depth of soil. Mr. Condon has now developed a similar scheme for making of a big bridge a tree-shaded boulevard.

Wednesday, November 4.—I see that the Cathedral of Notre Dame at Rouen has just been cleaned by the steam-and-vacuum process, five tons of its ancient dust having been thus removed. It was last cleaned in 1789, when the cleaners finished up their work by whitewashing it.

Thursday, November 5.—There is much true talk in a report of the Committee on Practice, Detroit Chapter, A. I. A., the two members of which are Clair W. Ditchy and Henry F. Stanton:

"We have heard much in the last year or two of the cry that architecture is really a business instead of a profession; or if it isn't it should be. We take the contrary view that architecture's very existence depends on its practice being more purely professional. We do not mean to imply that its professional practice should not be conducted in the most business-like manner. On the contrary, it is of utmost importance that it be so conducted. We feel, however, that there has been much loose thinking and considerable loose talk about putting architecture on a business basis, and that this has tended to hurt the profession rather than help it."

Friday, November 6.—Arthur C. Holden is trying to rouse the public to the need for finding some way to free the capital that is frozen in real-estate investments. The almost universal human attribute of desiring to own and hold land, Mr. Holden blames upon an inherited dread of landlords. If we could get over this, and be content to pay for land a rental which actually expresses the value of the use made of the land, we should rid ourselves of an unnatural burden carried in the paying of toll upon inflated land values. Mr. Holden thinks that more harm results from speculation in real estate than from speculation on the stock exchange. A real-estate market, functioning in the same way as the stock exchange, would do away with the necessity or temptation for a sale of the realty itself, since the basis for increases in value of the securities issued would be increased earning power rather than exploitation.

Monday, November 9.—Raymond Hood, talking before the American Woman's Association at luncheon today, justified with much enthusiasm the scheme for Radio City. In defending the utilitarian restrictions on skyscraper architecture which some critics have held must inevitably produce a bald and ugly design, Hood cited the modern steamship as a matter of construction on purely practical lines that had achieved real beauty. "The *Bremen* and the *Europa*," he said, "are so beautiful that they make the Pitti Palace in Florence look like thirty cents."

Tuesday, November 10.—Among the varied efforts of the Architects' Emergency Committee for the Region of New York is one by which it is hoped to persuade owners of country estates who ordinarily close their country homes for the winter, to provide work therein for the architectural draftsman. There is always something that might be done about a country place—new porches or stairways, painting, repairing, refinishing of floors, etc. By removing unemployed single men from the cities and putting them at work in the country, with a place to live and a small monetary return, the work that does develop in the cities will be available for architects with families depending upon them for support.

Wednesday, November 11.—Claude Bragdon dropped in for a few moments, and the talk drifted into methods and kinds of perspective drawing. In most of his own drawings he uses isometric representation in lieu of optical perspective, on the theory that the isometric has a quality very much nearer that of the mental image than that of the eye image. However, he has devised a compromise in isometric drawing which brings it much nearer optical perspective, that is to use full units of measure on the horizontal and half units on the thirty-degree lines. The Chinese, incidentally, in their art show a great fondness for parallel perspective, which accords with Bragdon's idea that they bothered less about what happens upon the retina, and much more about what happens in the mind. When one pictures a building mentally, one does not bother much about vanishing points and all the other intricacies of optical perspective. One creates an image that is possibly more nearly like parallel isometric than anything else.

Thursday, November 12.—Apparently there is an architectural education storm brewing, for in walking down the street at noon to-day I met Ellis F. Lawrence of Portland, Ore., Joseph M. Kellogg of Lawrence, Kans., Dean Everett V. Meeks of New Haven, Conn., C. C. Zantzinger of Philadelphia, and Charles Butler of New York, chairman of the A. I. A. Committee on Education.

Saturday, November 14.—President Hoover has finally launched his scheme for home-loan discount banks of which he first spoke at our editorial conference at the White House last April. The plan has been called the President's second major step in the interest of relieving economic stagnation. In brief, the scheme is the setting up of twelve discount banks under the control of a Governmental board. These banks would include in their membership building and loan associations, savings banks, deposit banks, and farm loan banks. These members would discount mortgages of fifteen thousand dollars or under, thus thawing out their frozen assets and permitting many new loans for home building throughout the country. The capital of each of the twelve banks would be from five to thirty millions, subscribed by the member organizations, supplemented possibly by the Government. The plan needs, of course, the approval of Congress before being put into operation.

Monday, November 16.—Colonel William A. Starrett is urging a scheme of employment rotation in the construction industry. He says that there are only about 58 per cent of the workers in the building trades now employed. Three plans are under consideration for helping this situation: first, the employment of a certain percentage of the entire personnel each day, with a like percentage remaining idle, thus rotating the work between two or more groups. The second plan calls for a three-day week for each workman. The third plan provides two daily shifts of six hours each. These plans are being discussed by organizations of contractors and of unemployment relief throughout the country.

Tuesday, November 17.—I was sorry to miss the opening to-day of Mrs. Gertrude Vanderbilt Whitney's great gift to the American public, the Whitney Museum of American Art. The museum was opened with addresses by Mrs. Whitney, former Governor Alfred Smith, Otto H. Kahn, and Christopher Morley, President Hoover having sent a letter of congratulations upon the occasion. As its title indicates, the museum is for the purpose of showing American art, but Herman More, the curator, says that the emphasis is to be placed primarily on "art" and secondarily on "American."

Thursday, November 19.—Carl E. Grunsky, San Francisco, president of the American Engineering Council, advocates a plan of action that rather parallels David C. Coyle's scheme for segregating surplus capital and turning it into permanent improvements instead of into more income-producing plant.

"Under a well-balanced programme the nation should get vastly more scientific research and educational opportunity. Art should be encouraged by the erection of monuments, the establishment of museums, art galleries, conservatories of music, and opera-houses with maintenance of opera companies in all centres of population. Expenditures for these purposes would contribute to the spiritual uplift of the people, and to the progress of civilization. . . .

"The basis of such a programme is a high rate of taxation. . . . If the burden were distributed commensurately with ability to pay, there would be less dissatisfaction and the public would soon learn that the greater the tax the less the slump in the aggregate volume of the country's business.

"Tax money thus put into circulation would create a volume of business that could readily bear the tax from year to year."

A photograph of which the above is a reproduction has been sent in to me for publication. It is a pleasure to show it for the sake of asking: Why should any designer think it appropriate to use a Greek temple motive on an airplane hangar?

Saturday, November 21.—William I. Garren, of the Northern California Chapter, A. I. A., says that the four-year building decline has stopped, and has definitely turned upward. His good news from the Pacific Coast is based on the fact that for the first eight months of each year since 1926, excepting for 1929, 1931 is the first to show no decline from the figures of the previous year.

Sunday, November 22.—Clarence S. Stein, who knows more about community housing and group planning than most of us, told an audience in Brooklyn to-night: "The civilization of the present day is moving beyond the cities because they are an antique and worn-out machine. Economically they are unsound, and will eventually disappear." Stein predicted that we are to have instead "small self-sufficient model communities in which each home will be surrounded by abundant air, light, and ordered grounds." With the highest regard for Clarence Stein's opinions, I should be more inclined to think that cities will continue to grow bigger, but that eventually we may come to see that we cannot cover the land solidly even in the Grand Central district. There is something happening before our eyes in New York City at the moment that should be an object lesson. Costly properties such as the Hotel Belmont and many others have been razed to the ground because neither they nor any other structure that can be devised will bring a profit on the high valuation of the land. At the moment, awaiting developments, it is cheaper to tear down the buildings, saving the taxes upon them, and leave the land "unimproved." The object lesson obviously is that if we are going to build high in the air, we must have correspondingly larger areas of ground about these high buildings. The one great difficulty is that the individual land-owner cannot afford to leave his land unimproved very long. The community, however, could well afford to do so—which brings us back in a circle to the stumbling-block that is presented every day in large cities through the private ownership of land. It seems to me that only through public ownership of the land is there any rational plan of development made possible.

Monday, November 23.—With O. H. Murray to St. Thomas's Church to inspect the new stained-glass chancel windows, about which there has been some discussion. There is an unusual, if not a unique, problem here in that the elaborately carved stone reredos extends all the way to the vaulting, and the east windows over the altar, therefore, are penetrations through this reredos. Murray points out the obvious fact that adding any sort of intricate pattern or figure work in these windows would distract the eye from the reredos itself and, incidentally, lose the opportunity for securing a foil of plane surface. If these breaks in the reredos were stone wall instead of window openings they would undoubtedly be better as unbroken plane surfaces. Therefore, it seemed to the architects that in the window an area of blue color would be the logical thing for which to strike. Obviously one cannot use clear-colored glass areas, so that the effect sought was a decided blue with vibration gained by the use of yellow, red, and green in combination with it. Incidentally, purple was carefully avoided by having no reds immediately adjacent to the blues. The pieces of glass are quite small, and the leading has no pattern whatever. Since there has been no attempt to antique the glass it still has an appearance of newness which will tone down as the patina is acquired. Mayers, Murray & Phillip, working with James P. Powell & Son, have felt very strongly the responsibility of dealing with an accepted architectural masterpiece, and searched the files for every expression of intention, however casual, by the late Bertram Goodhue. In one letter that he wrote he said: "The style we have employed for the church is rather indeterminate—but more French than English. The glass, therefore, should not be of the pale and silvery type one usually associates with England, but rather rich, harmonious, and full-toned, as was the case in similar work in the mediæval period of France." The glass that has been replaced was, of course, a merely temporary material—quoting Goodhue, "The glass was of the cheapest possible description." Incidentally, the rector of St. Thomas's, Dr. Roelif H. Brooks, is inaugurating a systematic campaign to finish St. Thomas's as to the rest of its stained glass and carved figures for the niches at an early date.

Wednesday, November 25.—I see that Gerald K. Geerlings has been awarded the Alice McFadden Eyre Gold Medal by the Pennsylvania Academy of Fine Arts, Autumn Exhibit, 1931, for his etchings.

Friday, November 27.—We occasionally lapse into errors of typography in these pages with no more serious results than the necessity for an apology. I see, however, that on the Herman Ritter Junior High School, New York's newest and one of its largest school buildings, they have put an extra *n* on the end of Herman, in cutting the name of the school into the limestone frieze—all of which involves in its correction considerably more than the lifting out of a piece of type.

Earl H. Reed, Jr., examining the Home Insurance Building in Chicago to determine whether it was built of skeleton construction

Saturday, November 28.—The father of the skyscrapers has been definitely designated by a Committee of Investigation under the chairmanship of Thomas E. Tallmadge, Chicago. The razing of the Home Insurance Building to make room for a new forty-two-story Field Building brought the opportunity to settle this fundamental question and one or two minor ones. In the first place, the committee had to determine upon a definition of skeleton construction, which it calls "a type of construction in which a metal frame or cage, composed of girders, beams, and columns, supports all internal and external loads and carries all stresses to the foundations." The committee finds that the Tacoma Building at 1 La Salle Street was completed April 1, 1888, while the Home Insurance Building at La Salle and Adams Streets was finished in the fall of 1885. There is no question, therefore, as to priority, the point at issue being whether the Home Insurance Building really was of skeleton construction. The committee's verdict is:

"We have no hesitation in stating that the Home Insurance Building was the first high building to utilize as the basic principle of its design the method known as skeleton construction, and that there is much evidence that William LeBaron Jenney, the architect, in solving the particular problems of light and loads appearing in this building, discovered the true application of skeleton construction in the building of high structures and invented and here utilized for the first time its special forms."

The committee, of which Mr. Tallmadge was chairman, consisted of Ernest R. Graham, A. H. Rebori, Earl H. Reed, Jr., Richard E. Schmidt, Benjamin H. Marshall, and Alfred Shaw, all architects; Charles B. Pike, President of the Chicago Historical Society; O. T. Kreusser, Director of the Rosenwald Museum of Science and Industry; Mark Levy, President of the Chicago Real Estate Board. W. B. Mundie, who helped design the Home Insurance Building, was an ex-officio member.

The Home Insurance Building, recently razed, which is designated by an investigating committee as the first high building to utilize the method known as skeleton construction. Designed by William LeBaron Jenney, and built in 1885

Sunday, November 29.—Dined with Egerton Swartwout, who is quite concerned about the difficulties that professional advisers bring upon themselves in writing competition programmes. Such programmes should, of course, be approved by the local chapter, which in turn passes the matter on to the A. I. A.'s national committee on competitions for final approval. The difficulty is that many of these programmes are issued before any official sanction has been given, only to have those interested find that there are provisions of which the Institute cannot approve. This reflects not only on the professional adviser, who naturally is supposed to know what he is writing, but upon the profession as a whole. It would save so much trouble for all concerned if these programmes were viséd before being turned over to those who will announce the competition. A few days' time lost here would save perhaps weeks later on.

Concealed Heating of the Convector Types

By F. W. Bartels

This article, together with its illustrations and those in the Portfolio which follows after, constitutes a fairly comprehensive presentation of the radiator problem and how it may be solved.

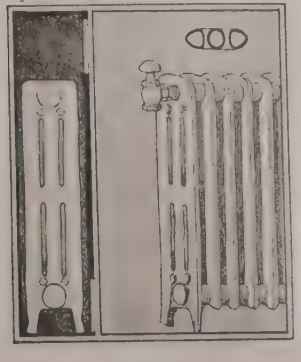
THE ghost of the one-foot-deep radiator enclosure has been laid once and for all by the recent development of the new cast-iron radiators and the newly evolved convector type of heating units. For no matter which of the dozen or so models is finally selected, the depth need seldom exceed four inches for ordinary conditions. This dimension makes it possible to have concealed heating in the frame house with no special provision other than to provide proper insulation between studs under the windows where the heating units occur. In the brick structure it means only the omission of the inner brick lining. This estimable result, of course, serves to render enclosed heating practically no more expensive than the old not-too-beautiful exposed radiators.

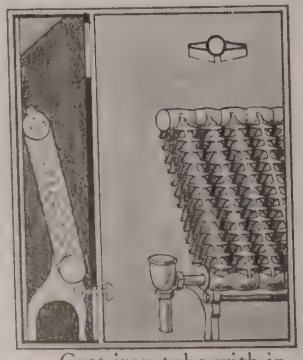
According to the definition taken from the American Society of Heating and Ventilating Engineers' Guide, a convector is a "heater which is enclosed in a duct or cabinet and which gives off the heat to an air stream, which passes into the room which is to be heated." Various types of these heating units in a flue or enclosed space are shown diagrammatically herewith. The cold air coming in at the bottom is heated; it expands and naturally rises upward, forcing its way up and out of the enclosure, and thus supplies a stream of heated air for the room.

In discussing the types of heating units it must be remembered that these units may be used in the proper enclosures in alteration work and do not of necessity have to be concealed in the wall, although this is of course more desirable in new work. In old buildings the same steam lines may be used. There are several excellent types of units on the market, a brief summary of which follows.

A narrow cast-iron-tube radiator is one which may be used either exposed or as the heating unit in a convector. Another cast-iron-tube radiator, which has integral cast fins set at an angle to the tube, must be hung or set at an angle off the vertical, so that the fins will deflect the air upward. Its efficiency is to some extent directly proportional to the degree to which it is inclined. Another has fins running on the sides of a high narrow chamber. Still another type of cast-iron unit which has an exposed front gives radiating heat while the back forms a convector. A combination of cast iron and copper is also available; the cast-iron front provides direct radiation while the copper tubes connected to it provide some of the heat for convection, the remainder being supplied by the rear of the cast-iron unit. Fins of non-ferrous metals are used considerably and in various ways. In one type copper plates or fins are securely fastened to a copper tube running through them. These units are then inserted in the flues or recess. A somewhat similar type uses a copper tube piercing aluminum plates and so joined that in effect it becomes an integral part of the fin and tube. Another type consists of a series of vertical hexagonal tubes, intersected horizontally by a winding copper tube containing the steam

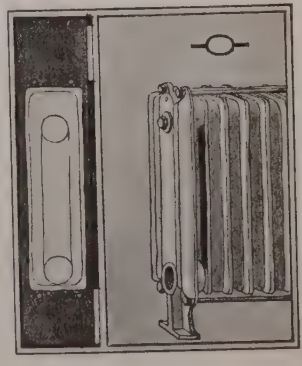
Narrow cast-iron-tube radiator, used in the open or as convector

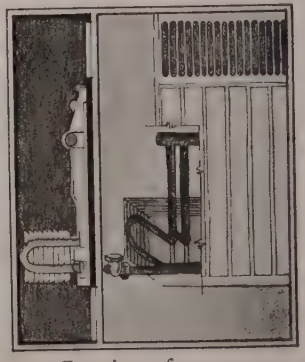




Cast-iron tube with integral fins set at an angle

A cast-iron chamber upon which the fins are cast integrally

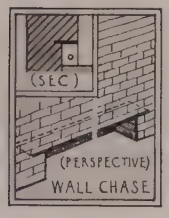




Cast-iron front copper fins and tube for convector action

or hot water. A variation of the tube type is that of a unit having a core of cast aluminum alloy, and conductor plates of sheet aluminum (which has a higher heat transmission value per unit of weight than cast aluminum). Finally, a hexagonal copper-tube type, which gives a large surface to which the fins may be attached, completes the group.

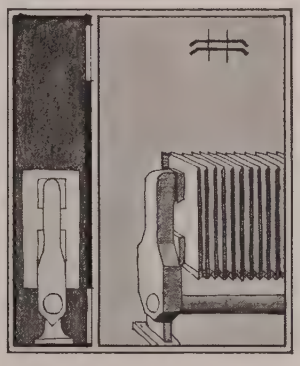
The manner of piping and installing convectors does not differ greatly from the methods used for the ordinary exposed radiator. The branches are generally run in a wall chase or recess made by the mason contractor. The supporting legs or brackets are furnished with the unit. Some types have their manifold so made that connections may be made from either side, while long screws to the floor are used to adjust the pitch.

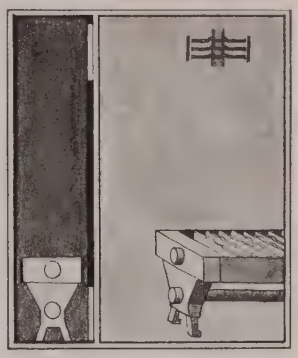


Many factors enter in the using of convectors that normally do not occur when installing radiators. Branches are usually run in a chase at the bottom of the wall. Often this may involve special construction which the architect will want to detail. The finished floor should be run all the way under the convector as far as the recess goes, as an added measure of cleanliness. Sometimes the floor is allowed to stop at the base, leaving a trough beneath the convector which will be a great dirt catcher. It is well also to have an asbestos backing for the convector. This will soon pay for itself in heat saved; since the exterior wall is thinner where the convector is inserted, a certain amount of heat will be lost by leakage without such insulation. Then, too, the manufacturer's directions as to height of flue or enclosure must be carefully followed. For the same reason that a chimney needs height to draw properly, so, too, a convector needs a certain vertical space in order to function properly. It is of the utmost importance that proper sides or baffle plates are provided for. To merely install a front and back for the convector permits the air to stagnate at both ends of the recess. To function efficiently it must enter at the base, be heated, and be pushed out of a confined space above the heat unit only by the incoming air at the bottom. There arises the question, also, whether to have the opening at the top or at the front face immediately below the top. Tests prove that the top opening is about 10 per cent more efficient than the one on the front, although the latter is often preferred because of decorative effects.

While the designer now has practically a free hand except for these top and bottom grilles (generally about four inches high and the width of the actual heating unit), he saves himself time and irritation by determining accurately the size and location of these openings. If there are to be competitive bids taken on the various types of heating units, the base and the panelling (or whatever the wall treatment) should be designed in such a way that a few inches' difference in height or width will not upset a whole scheme. In the room which is to have a dado, it may be that the grilles are least objectionable when occupying the stile below this series of mouldings. If the grilles threaten to break into any such horizontal feature it may be advisable to have less high but deeper heating units, even at the expense of slight breaks forward, for in width these can be confined within the window-trim limits and be less conspicuous than interrupting mouldings which otherwise carry around the entire room. A base which has a plain facia high enough to accommodate the grille and any necessary rabbets, is almost indispensable.

Copper plates fastened to a copper tube passing through them

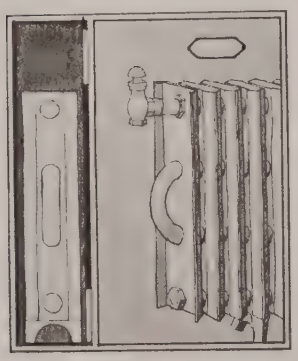




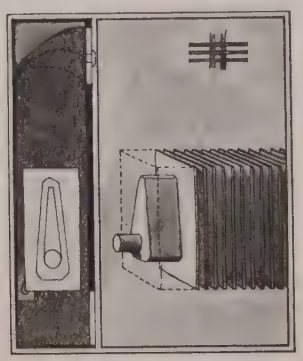
Copper plates and tubes; a similar type copper with aluminum

The problem of the bottom inlet for cold air offers a choice of two solutions: either there can be an unobstructed opening provided, or there may be a grille with members running vertically or horizontally. To omit the grille means that there is less expense but more visible dirt space. The appearance of this opening in a light-colored base is not an asset, by any stretch of the imagination. However, it can be made to look less objectionable if a carefully studied profile of scroll work is considered, after the manner of

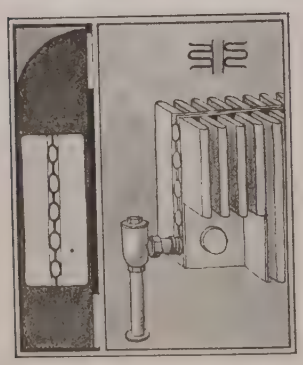
Colonial cupboards or Welsh dresser aprons. If the room can possibly stand a dark or black base, the problem is fairly well solved by thus rendering the opening almost unnoticeable. This is a particularly good solution in the case of a residence where the side hangings extend to the floor and hide the transition from full base to cut-out base. It goes without saying that an unobstructed opening requires less actual area than the overall dimensions of a grille which is required to admit the same volume of air. However, a happily conceived grille may in many cases become a desirable interruption in an otherwise monotonous base. Instead of



Vertical hexagonal tubes intersected by a winding copper steam tube



A cast core of aluminum alloy, with conductor plates of sheet aluminum



A middle core of copper to which are attached copper fins

duplicating the exact pattern of the upper grille, it can consist of a series of horizontal louvers which have the advantage of repeating the horizontal accent of the base. If the top grille is to be ornate it would seem better design in all cases to treat the lower one more simply.

The manufacturers of these improved heating units usually guarantee that if only the top and bottom grilles are removable all heating exigencies which may arise can be managed, and that the panelling or other wall material in front of the heating unit can be made stationary. However, while this may be true in ninety-nine cases out of a hundred, no architect likes to run the risk of having his panelling the one to be torn out because the heating unit proves to be so faulty that it must be replaced. In the case of plaster nothing can be done except hope that nothing untoward will occur; after all, plaster patching is not an expensive item. But if wood panelling is being designed, with a little extra trouble this can be so made that by pushing up and then pulling forward it can be removed—without any special hardware or heavy expense.

Accessibility of control must be kept in mind also. Some types have the valve located at the bottom, some at the top. Others have it concealed behind a small panelled door in the front, or a part of the grille swings on a concealed hinge. Several types are regulated by the opening or closing of the top outlet or grille by means of a small knob. This is a simple method and is really the reincarnation of the old hot-air register.

In handling convectors on the job it must be borne in mind that thin fins do not have the robust physique of cast-iron radiators. Also, as a rule they are set before the plastering is done with its attendant scaffolding. Hence the handling must be done with care and provisions taken so that the fins are not mashed by the burly trades. It is a good plan to have thin wooden strips on the fins when they are shipped, to prevent the edges from being mashed in. After being set the top or top-side grill should be closed up by having a board fastened over it or by having several layers of heavy paper pasted over it. Failure to take these precautions will result in the fins being bent, dirt and plaster filling the space between the plates, and the efficiency of the unit greatly curtailed.

For the residence which is to have heavy hangings there should be proper provision made at deep jambs so that the heat will not be boxed in a drapery pocket. There will be no heat if the hangings cover the grilles. If the client insists on the omission of roller window shades and the sole use of hangings, he should have it thoroughly explained in writing and kept as a record, that hangings which are to be drawn must extend only to the top of the windowsill—as they would if the radiator were exposed in the old way.

When it comes to the question of paint on the enclosure, it must be remembered if the decorating is done after the enclosure is set in place, certain paints will darken and discolor due to the action of heat. This is best avoided by having the manufacturer send the enclosure to the job already painted or enamelled.

ARCHITECTURE'S PORTFOLIO OF

RADIATOR ENCLOSURES

THE SIXTY-THIRD IN A SERIES OF COLLECTIONS OF PHOTOGRAPHS ILLUSTRATING VARIOUS MINOR ARCHITECTURAL DETAILS

Forthcoming Portfolios will be devoted to the following subjects: Interior Clocks (February), Outside Stairways (March), Leaded Glass Medallions (April), Exterior Doors (May), Metal Fences (June), and Hanging Signs (July). Photographs showing interesting examples under any of these headings will be welcomed by the Editor, though it should be noted that these respective issues are made up about six weeks in advance of publication dates.

Subjects of Previous Portfolios

1926–27
DORMER WINDOWS
SHUTTERS AND BLINDS
ENGLISH PANELLING
GEORGIAN STAIRWAYS
STONE MASONRY TEXTURES
ENGLISH CHIMNEYS
FANLIGHTS AND OVERDOORS
TEXTURES OF BRICKWORK
IRON RAILINGS
DOOR HARDWARE
PALLADIAN MOTIVES
GABLE ENDS
COLONIAL TOP-RAILINGS
CIRCULAR AND OVAL WINDOWS

1928
BUILT-IN BOOKCASES
CHIMNEY TOPS
DOOR HOODS
BAY WINDOWS
CUPOLAS
GARDEN GATES
STAIR ENDS
BALCONIES
GARDEN WALLS
ARCADES
PLASTER CEILINGS
CORNICES OF WOOD

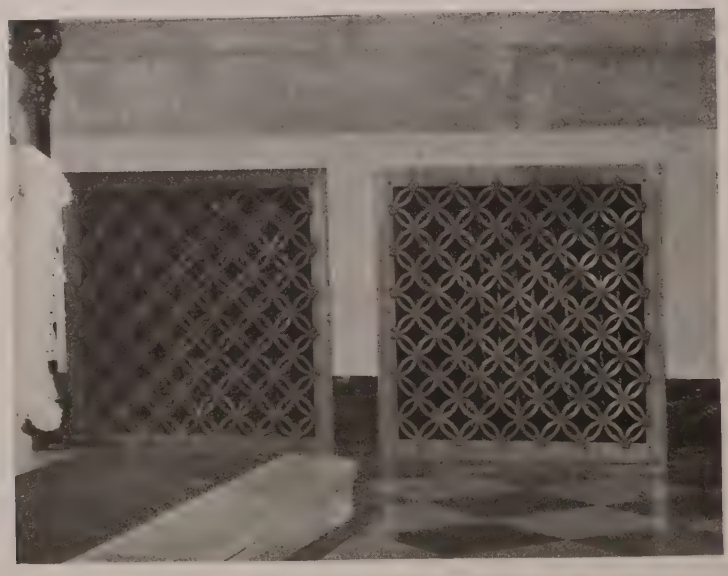
1929
DOORWAY LIGHTING
ENGLISH FIREPLACES
GATE-POST TOPS
GARDEN STEPS
RAIN LEADER HEADS
GARDEN POOLS
QUOINS
INTERIOR PAVING
BELT COURSES
KEYSTONES
AIDS TO FENESTRATION
BALUSTRADES

1930
SPANDRELS
CHANCEL FURNITURE
BUSINESS BUILDING ENTRANCES
GARDEN SHELTERS
ELEVATOR DOORS
ENTRANCE PORCHES
PATIOS
TREILLAGE
FLAGPOLE HOLDERS
CASEMENT WINDOWS
FENCES OF WOOD
GOTHIC DOORWAYS

1931
BANKING-ROOM CHECK DESKS
SECOND-STORY PORCHES
TOWER CLOCKS
ALTARS
GARAGE DOORS
MAIL-CHUTE BOXES
WEATHER-VANES
BANK ENTRANCES
URNS
WINDOW GRILLES
CHINA CUPBOARDS
PARAPETS

Recessed with sheet-steel enclosure

Sheet-steel enclosure open at bottom

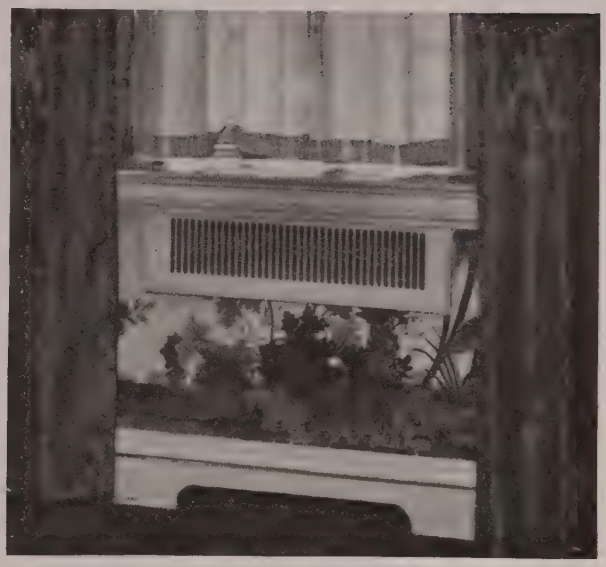


Special use of a stock metal grille

Projecting portable enclosure

Portable cover of wood and cane

Window-sill opening with specially cut bottom, in wood

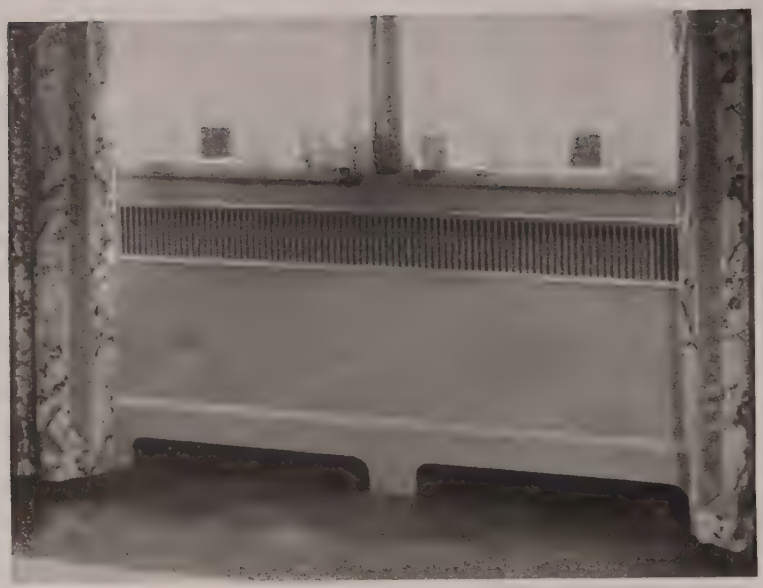


Carrying wallpaper over the convector recess

Special treatment of a stock metal grille

Portable type of furniture steel with metal grilles

The metal grille used as a screen and not as a convector



The convector behind the plaster wall

Pierced tile, forming a convector in the bathroom

The wood slat as a screen

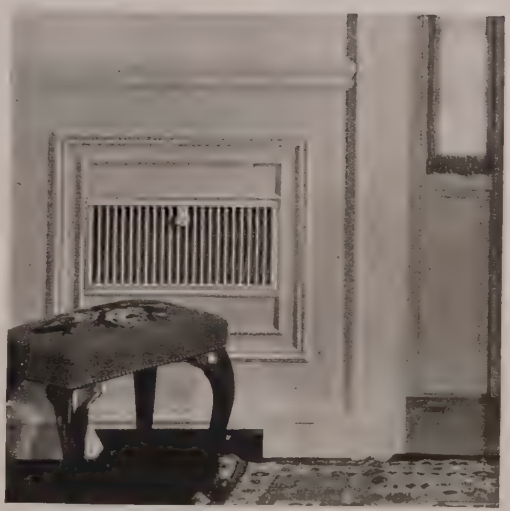
Metal grilles in a bay-window reveal

Sheet-steel covering for ends and top of a tubular radiator

Metal grille in a window reveal

One of Frank J. Forster's wood spindle screens

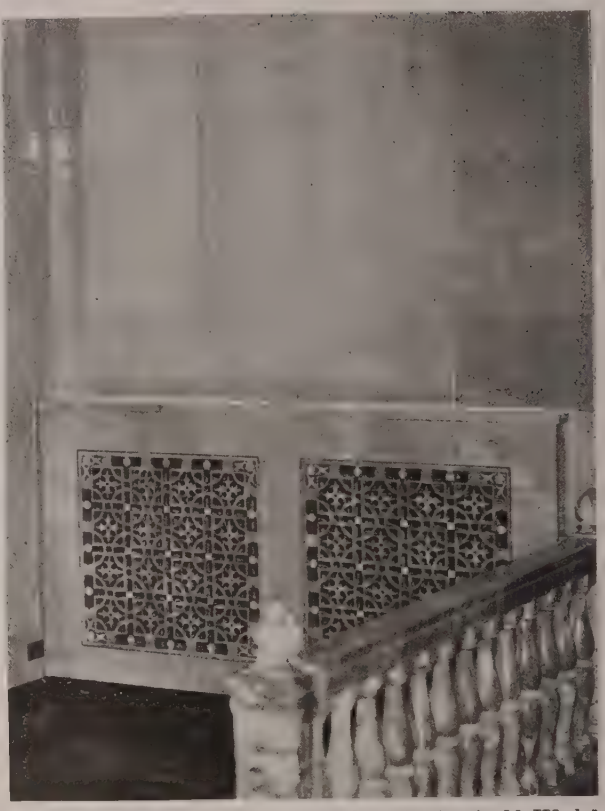
The reincarnation of the old warm-air register



Sheet-steel recess in a stud wall, with access panels

Turned spindles with supplementary top front openings

Convector in an interior partition



Metal grilles designed by Maginnis & Walsh

Wrought-iron screen with a heavy tubular radiator

Combined convector and direct-radiation unit in cast iron

Concealing the lower opening in a dark base

Carved wood panels. Henry Raeder, N. Max Dunning, George C. Nimmons & Company, associated

Metal enclosures with slight projection

Wrought-iron strap grilles over wall recess

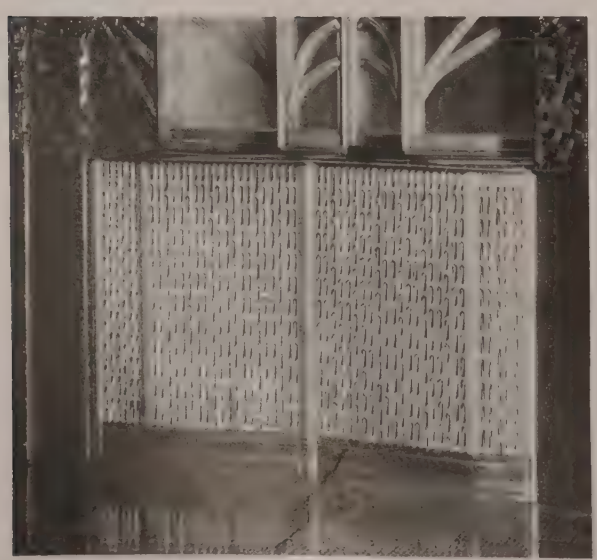
Partly recessed behind woodwork

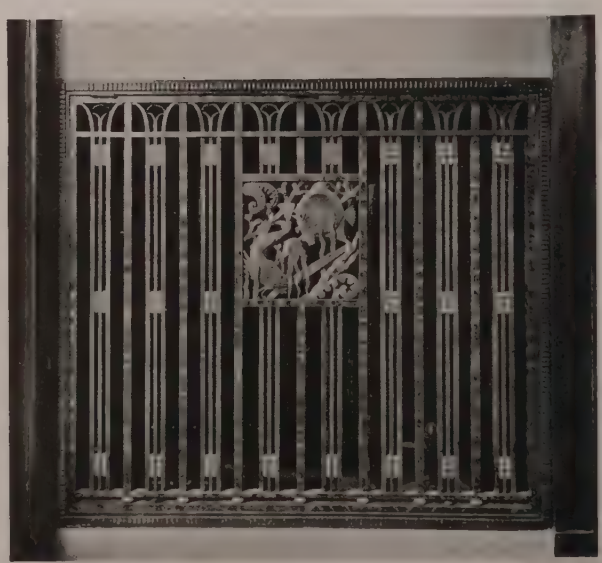
Spindles over wire mesh with a cutout base

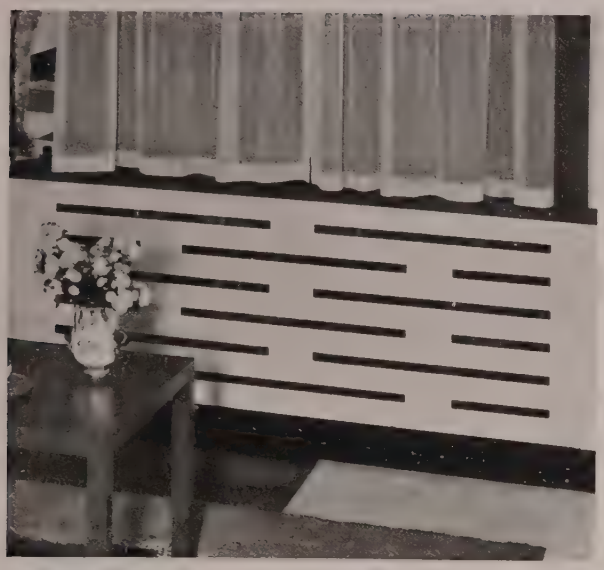
Portable enclosure of furniture metal with metal grille

A bronze grille by Voorhees, Gmelin & Walker

Metal grille for banking-room. Craftsmanship by Renner & Maras





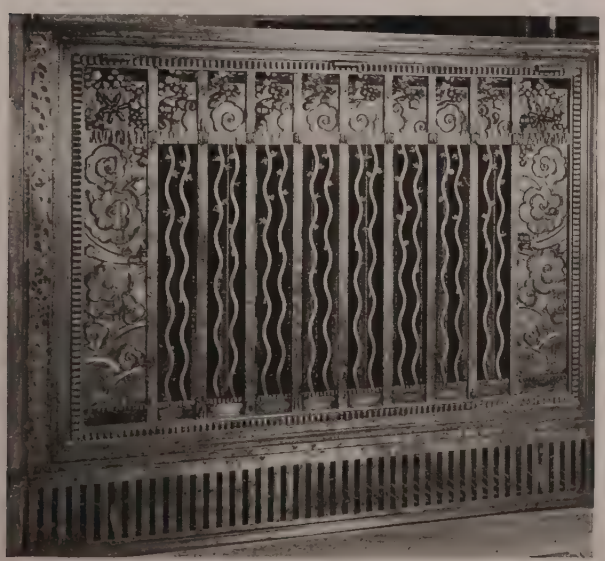


Lower opening in a black base, with slotted metal front

Inconspicuous bottom openings and grille in connection with dark woodwork

Convector metal covering for free-standing radiator

Wrought-iron grille for banking-room. Executed by Renner & Maras



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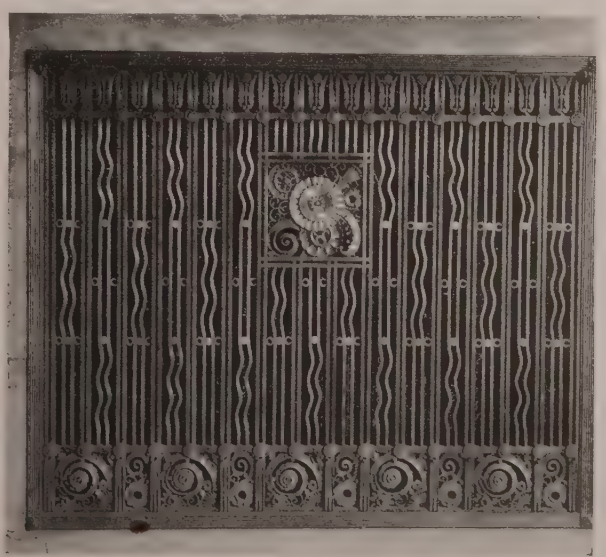
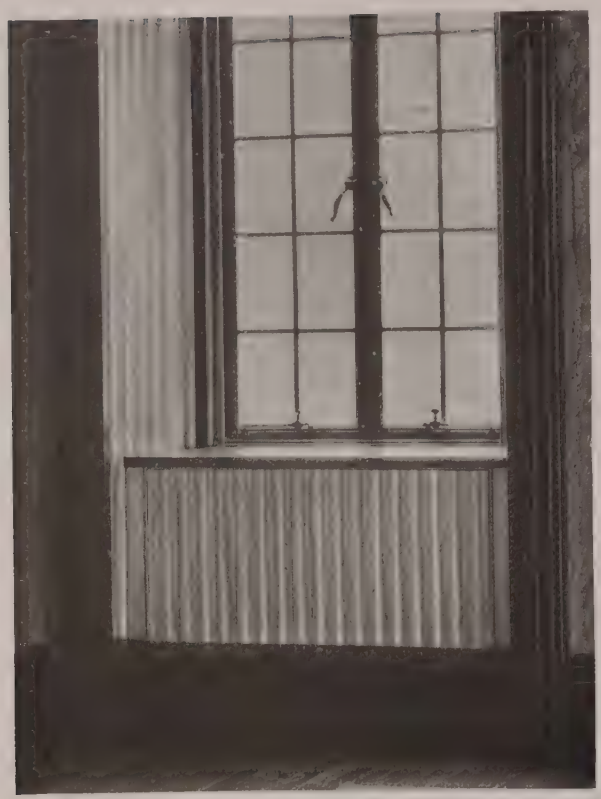




Fluted metal front panel and window reveals by Eric Kebbon

Wood spindles in front of wire mesh by Frank J. Forster and R. A. Gallimore

Another variation of the wood spindle by Frank J. Forster

Utilizing the lower part of a corner cabinet. Godwin, Thompson & Patterson

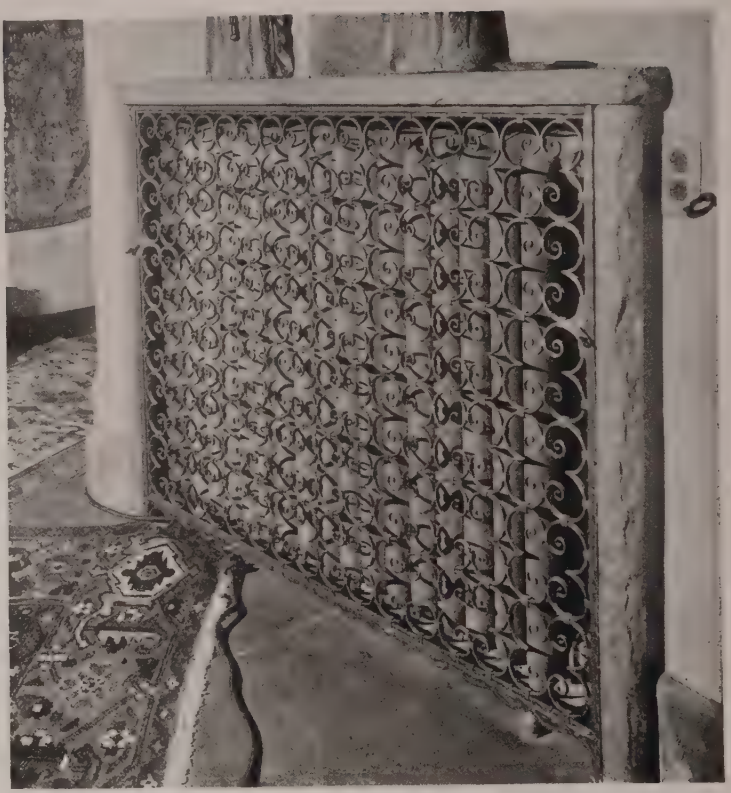
One of two facing convector panels in a hallway

Baluster screen under a stairway. John Graham, Jr.

Metal grille panel in tile work

Wood grille in front of sheet-metal convector. Lester Beach Scheide, Inc.

A special treatment of stock metal grilles by Harry Hake and Charles Kuck



The traditional wrought-iron grille screening the ordinary tubular radiator

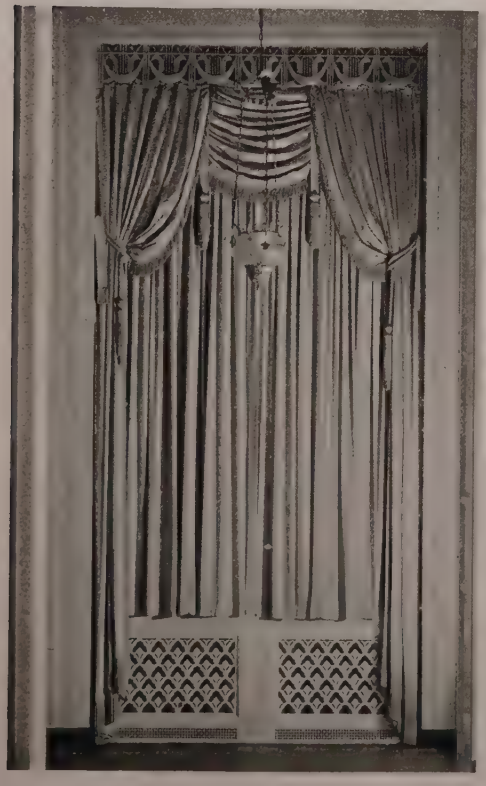
Carved wood screen in Rockwell Kent's own house

Convectors behind marble, supplementary to air conditioning above window

Bronze grille by The Firm of Ely Jacques Kahn

Special use of a stock metal grille

Convector behind metal grille, supplementary to air conditioning above window



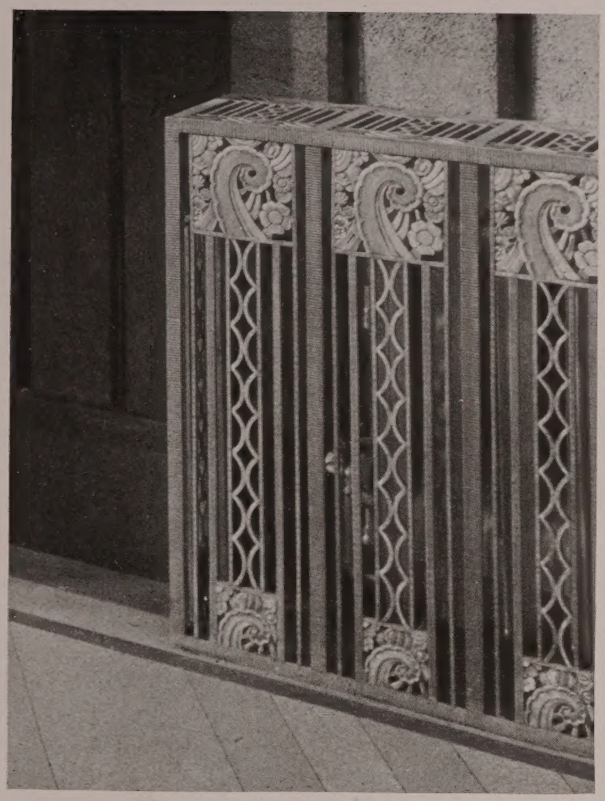
Metal grille as screen under stairs. Delano & Aldrich

Metal grille to floor, acting as screen only. Moise Goldstein

Bronze grille in bank. John Mead Howells

Wrought-iron screen with lower opening in marble base

Stock metal screen with base opening

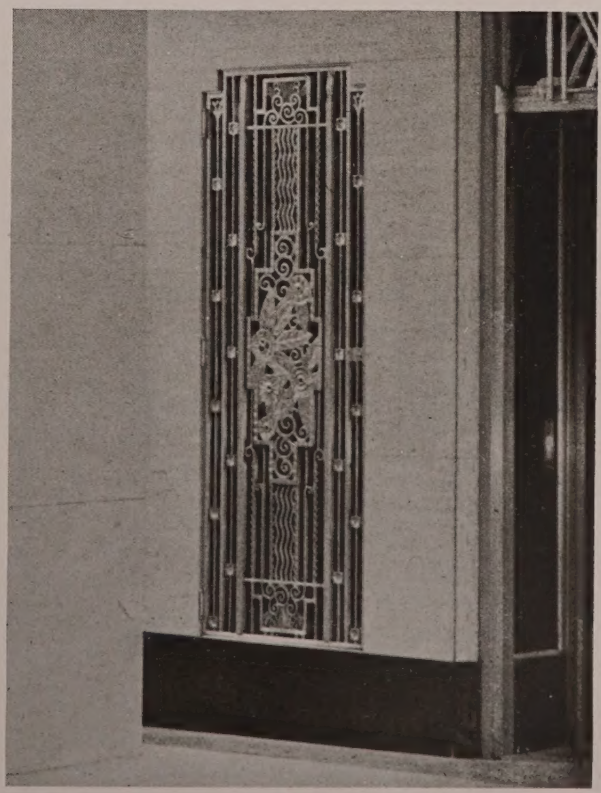


Free-standing screen of iron and bronze. Morgan, Walls & Clements

Wood and painted wire mesh under shelving. Lewis Bowman

Lower opening in a black base behind wood. Armstrong, Furst & Tilton

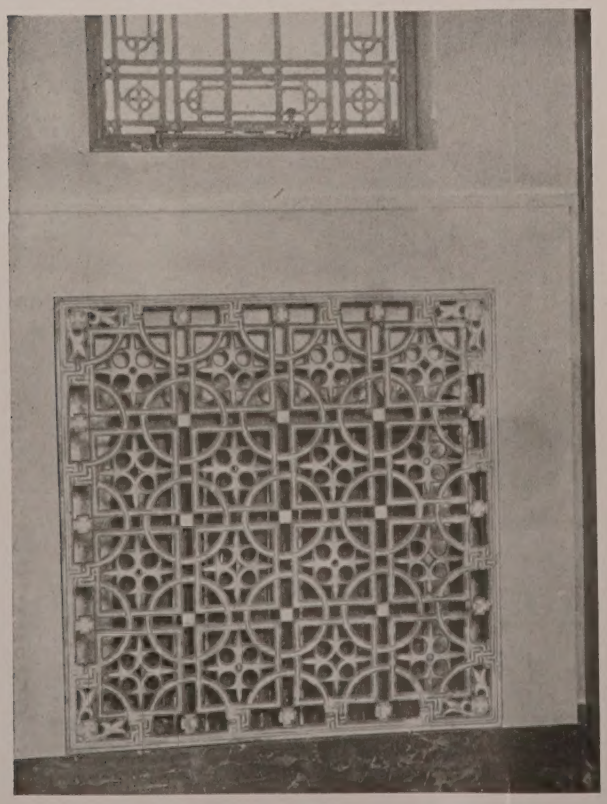
Bronze grille in an office lobby. Holabird & Root



Marble slab as convector face without grilles. Paul P. Cret

Bronze grille in an office lobby. Voorhees, Gmelin & Walker

Stock metal screen without convector action



Portable cover of furniture metal with front of rods

Photograph by Palmer Shannon

A general view of the house of Mr. Sherman Pratt on Niagara Island in the St. Lawrence River; John Walter Wood, architect. From the power house and boat landing the house piles up in successive roof terraces to the dominating tower and chimney